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mainly since 1700

BY

C. R. FAY

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Contents

	PAGE	
PREFACE -	vii	
PART I		
CHAPTER	PROLEGOMENA	
I.	1776 - - - - -	3
II.	THE MERCANTILE SYSTEM - - - - -	8
III.	CAPITAL AND CAPITALISM - - - - -	15
IV.	THE HISTORICAL SIGNIFICANCE OF MONEY	22
V.	THE MEANING OF MEDIEVAL MONEYS - - - - -	27
VI.	THE STANDARD OF VALUE - - - - -	33
VII.	THE SEARCH FOR SILVER AND GOLD - - - - -	40
VIII.	STAGES IN ECONOMIC HISTORY - - - - -	45
PART II		
FISCAL POLICY AND AGRICULTURE		
IX.	REFORM AND REPEAL - - - - -	55
X.	DR. PRICE AND THE NATIONAL DEBT - - - - -	63
XI.	WAR FINANCE AND PITT'S INCOME TAX	69
XII.	HUSKISSON AND OTTAWA - - - - -	76
XIII.	TOWN AND COUNTRY - - - - -	80
XIV.	LAXTON AND THE OPEN FIELDS - - - - -	89
XV.	A BOUQUET FOR RURAL SCOTLAND - - - - -	96
XVI.	FOOD AND FOOD PRODUCTION IN PEACE AND WAR - - - - -	102
PART III		
TRADE AND INDUSTRY		
XVII.	PERIODS IN INDUSTRY AND TRANSPORT	111
XVIII.	RIVER, COAST AND OCEAN - - - - -	117
XIX.	ENDEAVOUR AND RESOLUTION - - - - -	127

CHAPTER	PAGE
XX. THE DEMAND SIDE OF THE INDUSTRIAL REVOLUTION - - - - -	134
XXI. DRINK AND DRUGS IN ECONOMIC HISTORY - - - - -	144
XXII. DESIDERATA OF INDUSTRIAL BIOGRAPHY - - - - -	154
XXIII. TREVITHICK AND CORNWALL - - - - -	164
XXIV. TYPES OF LOCAL GROWTH - - - - -	171
XXV. TYPES OF LOCAL GROWTH— <i>continued</i> - - - - -	177
XXVI. THE DISTRIBUTION OF THE INDUSTRIAL POPULATION (WITH SUPPLEMENT) - - - - -	188
XXVII. THE EXPORT OF CAPITAL - - - - -	198
XXVIII. THE EXPORT OF CAPITAL— <i>continued</i> - - - - -	207
XXIX. LABOUR MIGRATION AND EMIGRATION - - - - -	211
 APPENDICES	
I. BRITISH STEELMAKING AND FOREIGN COMPETITION, 1870-1914 - - - - -	221
By Mr. D. L. Burn	
II. INLAND TRANSPORT, 1900-1940 - - - - -	227
By Mr. C. E. R. Sherrington	
III. "SOMEWHERE IN CO-OPERATIVE FRANCE" - - - - -	234
By Miss M. Digby	
INDEX - - - - -	241

Preface

THESE lectures were delivered at Cambridge University in the academic year 1939–40 and represent two-thirds of the course, the balance being devoted to Social Conditions and Popular Movements, of which some years ago I attempted a sketch under the title of *Life and Labour in the Nineteenth Century*.

To the reader, perhaps, they may appear rather disjointed, but I think that this was less felt by the students, because not a few were by way of answers to questions in the fortnightly papers after I had read and corrected these. Two reasons induce me to publish them. The first is the hope that they will be of service to those whose studies are curtailed by the war. The second is the fact that owing to the constant output of good books it becomes increasingly difficult to do justice to all phases of the subject in a single course. This will clear the way for fuller attention to the social side in subsequent years.

Four of the lectures were delivered by friends, of which one is abstracted (pp. 196–7) and the other three are published as appendices. A talk on Bagehot by Mr. F. W. Hirst, as it will be used elsewhere, does not appear here. On behalf of the class I express my gratitude for these contributions. I also thank my son, H. C. Fay, for the index.

C. R. FAY.

CAMBRIDGE,

6th May, 1940.

Part I

PROLEGOMENA

CHAPTER I

1776

No title would be so attractive for Lecture I as "Eve of the Industrial Revolution," yet none so hard to handle. For we cannot give it a precise date, and the very use of the term raises protests from those who say that there was no industrial revolution and therefore no evening to it. Let us, then, take a specific year, 1776 (the year of the first St. Leger¹), and keeping to this year and a short period on either side of it, consider what there was of exceptional significance to economic history then.

1776, as all know, and it is one of the few things that all know, was the year when America declared her independence (4th July) and Adam Smith published the *Wealth of Nations* (9th March). He had foreseen the break, but it is too much to hope that if he had sent his manuscript to press before the Boston tea party of 16th December, 1773, the issue would have been any different. For the solution which he favoured in the *Wealth of Nations*—economic freedom plus political union—would, on the evidence of the subsequent history of the Empire, including Ireland, have been not less distasteful than the existing status.

Not so many know, or knowing remember, that on 25th August, 1776, David Hume breathed his last and that in March, 1776, Canada repulsed an invasion from America. It is, however, with these two episodes that we concern ourselves chiefly in this lecture.

On 16th June, 1776, Adam Smith wrote to the dying Hume:

A mineral water [Hume was taking the Bath Waters] is as much a drug as any that comes out of the Apothecary's shop. It produces the same violent effects upon the body. It occasions a real disease, tho' a transitory one, over and above

¹ The race, not yet called the Leger, was run on Cantley Common in 1776 and '77, as a two-mile handicap for 25 guineas. In 1778 the course was moved to its present position because of a turnpike road to Bawtry cutting the old course; it then received its title from the Marquis of Rockingham after Lieut.-Gen. Anthony St. Leger. It has been held each year on the same course (second Tuesday in September) till 1939, when the outbreak of war compelled its cancellation.

that which nature occasions. If the new disease is not so hostile to the old one as to contribute to expel it, it necessarily weakens the Power which nature might otherwise have to expel it. Change of air and moderate exercise occasion no new disease: they only moderate the hurtful effects of any lingering disease which may be lurking in the constitution; and thereby preserve the body in as good order as it is capable of being, during the continuance of that morbid state. They do not weaken but invigorate the power of Nature to expel the disease.¹

This is significant both for its content and for the person to whom it is addressed.

Adam Smith here implicitly sums up his free trade philosophy. It is not the medicine of artifice, but the common sense of nature. It is not a system of the French type, but empiricism of the British type—hard-headed, nature-trusting common sense, with a warm corner for anything that resembled the current practice of matter-of-fact Holland. And so to the master the Bath Waters were, like mercantilism, an artificial stimulant. What Hume needed, what the England of 1776 needed, was the fresh air of freedom, the vigour of the countryside. That way lay health alike for the physical and political body. Do we not see in a flash how inadequate the term *laissez-faire* is to translate Adam Smith's system, "your" system, as Alexander Wedderburn and other disciples were already terming his constructive vision of economic freedom?

It is hard to say any new thing of the perfect friendship between Smith and Hume; but I think of 1776 as the year in which the author of the *Wealth of Nations* left the author of the *Theory of Moral Sentiments* so far behind that not even the happiest sallies in Hume's *Balance of Trade* could have kept their economic partnership abreast. It is well to remember that the father of political economy was a professor both of logic and moral philosophy. But he only became a great economist when he evolved a technique of analysis with which no general philosopher could keep pace. Mill's *Logic* is assuredly greater than his *Principles of Political Economy*, but the distance which measures his greatness as a logician measures also his limitation as an economist.

¹ W. R. Scott, *Adam Smith as Student and Professor*, p. 272.

In March, 1776, Canada repulsed an invasion from the embryo American Republic. The episode is of some significance in naval and military history, and may be studied in detail in the relevant chapters of the *Cambridge History of the British Empire* (Vol. VI, "Canada") and Mr. C. N. Parkinson's *Edward Pellew, Viscount Exmouth* (1934). If colonial warfare had been naval warfare, it is hard to believe that the American colonists would have won their independence, but they dealt with us in their backwoods as the Boers dealt with us on their Veld (and in England there were more pro-Americans in 1776 than pro-Boers in 1899). The situation was otherwise when they came out of their woods and risked a backdoor raid upon the frozen fastness of Canada. Indeed, they had as much chance of taking and holding the sub-continent of Canada as of taking and holding the island of Guadeloupe.

The De Wet of 1775 was a certain Benedict Arnold, who with one Ethan Allen captured in quick succession Ticonderoga, Crown Point and St. John's (Quebec), May, 1775. These two and their compeers, Thomas Walker (to whom the episode was a Jenkinsian revenge for the loss of his ear) and Richard Montgomery, a decent man, were like the Fenian raiders of a later day in that they damaged better than they knew. The invasion of 1775 by rousing the Canadians to a hearty resistance accomplished "more for the enlistment of the habitants under the British standard than all the threats and exhortations of Carleton and his priests and seigneurs."¹ And the all-round failure of the raiders in the year following did something to stiffen the discipline of the cause to which they belonged. America learnt then the necessity of sterner discipline and of a national, as distinct from a provincial, outlook. "It is significant," says the *Cambridge History*, "that the Declaration of Independence, the symbol at least of national unity, followed close on the heels of the failure of the invasion of Canada."²

The reason for the failure was the physiography of land and water, and Mr. Belloc would have loved to have the telling of it. But Mr. Parkinson has done it for him. Lake

¹ *Cambridge History of the British Empire*, VI, 178.

² *Ibid.*, 182.

St. George and Lake Champlain formed a north-south waterway, which all but joined the Hudson of the English colonists with the St. Lawrence of the newly-conquered French. (The land stretch of 16 miles from St. John's to the St. Lawrence was the site of the first railway of Canada, the Champlain-St. Lawrence portage road of 1837.) This waterway, however, was also a barrier of wood and water between New England and the Middle Colonies; and a force astride it not only severed New England from the food and people to their west, but, if its navy also held the sea, they turned New England into an island like Newfoundland. Now, it was equally as easy to cross the height of land by Saratoga and descend on Albany from the north, as it was to descend similarly on Montreal and Quebec from the south. But, in the latter case, it was very much harder to stay put owing to the severity of the Canadian winter. This explains the fiasco of the siege of Quebec in the winter of 1775-76, when Arnold shivered and starved and lost half his men from exposure and smallpox outside Quebec, while Carleton, the Governor, lived in tolerable elegance within, his men being comfortably besieged in a citadel which they had no purpose in leaving.

It explains also the completeness with which, in 1777, the luckless Burgoyne was "mafekinged" at Saratoga. For it was a thoroughly sensible idea to close the water ring around the rebels, and a winter outside Albany, though cold enough, was tolerable. But if your Lord Roberts (General Sir William Howe) does not get any marching orders from the War Office, it is not to be wondered at that Burgoyne from the north did not join forces with Howe from the south, seeing that Howe never started. Mr. Parkinson is mild in calling it "a startling feat of incompetence at home"¹—that home from which English defeats from Calais to Khartoum so often were engineered. The "if" school of historians may suggest here that a successful Burgoyne might have antedated the boy scout movement by more than a century. But instead, he had an illegitimate son, who became a field marshal, and he forgot the humiliation of Saratoga in the impeachment of

¹ C. N. Parkinson, *Edward Pellew*, p. 42.

Warren Hastings. Having helped to lose an empire across the Atlantic, he persecuted the winner of an empire in the Indian Seas. Before his death, in 1792, this admirable Whig soldier had achieved a full hand.

Mr. Parkinson's hero comes into the picture thus. Midshipman Pellew was on the Atlantic in a fine French-built frigate the month the *Wealth of Nations* was published. On 10th June his boat reached Trois Rivières. To come to grips with Arnold, who had by now retreated to Lake Champlain, which he held with a flotilla, it was necessary to build a bigger ship than he had and to "portage" the parts from St. John's over to the north end of the lake. Pellew was in at this and displayed, we are told, on a certain critical occasion the springiness of a squirrel. In the ensuing naval encounter Arnold was outmanœuvred and took refuge in flight; but in a sense he had won, for he had held up the English long enough to compel them to wait till the spring of 1777 for the taking of Ticonderoga, after which, for the reason already given, came the disaster of Saratoga. However, the restless Pellew had only one day of captivity (14th October); for Burgoyne sent him home with dispatches and a very honourable mention, and he was promoted lieutenant after passing an examination, which took the form of being required to describe the Saratoga campaign from start to finish. With propriety, Mr. Parkinson might have taken as sub-title for his exciting biography "From Saratoga to Algiers."

As defence is of more importance than opulence, there is, perhaps, no incident which forms a more appropriate introduction to the economic history of this time than the above. The sailors and the settlers—the Navy and the United Empire Loyalists—called in a new empire to redress the miscarriage of the old. Without Canada and those other Dominions which were still in the womb of time, England willy-nilly would have been compelled after 1783 to accommodate herself to the essential mediocrity of her island circumstance. And right through her history from that day to this runs Huskisson's solemn warning: "England cannot afford to be little. She must be what she is, or nothing."

CHAPTER II

THE MERCANTILE SYSTEM

THE WORD.

The French are great phrase-makers: *impôt unique*, *physiocrate*, *laissez-faire*. And I think we must allow them also "industrial revolution" and "the mercantile system." On revolution, Littré is enlightening, for he gives us the following from Raynal (1780). "Une grande révolution se prépare dans le commerce de l'Europe, et elle est déjà trop avancée pour ne pas s'accomplir." It is a happy lead; for just as Mrs. Knowles with deliberate intent entitled her history *The Industrial and Commercial Revolutions in Great Britain during the Nineteenth Century*, so with even greater propriety we may speak of "The Commercial and Industrial Revolutions of the Eighteenth Century." Ask an Oxford student who is being viva'd in Modern Greats, "Who invented the term Industrial Revolution?" and he will reply smartly, "Arnold Toynbee, who got it from Marx." Ask him then what college Toynbee was at, and his face becomes a blank. *Crede experto* (five men and one woman running). "Mercantilisme" is dismissed by Littré as a neologism, but "mercantile" yields the following from Chateaubriand (1834): "Le calcul décimal peut convenir à un peuple mercantile." On this test we are still not advanced to the mercantile state; for to say nothing of not fixing Easter, we cling with rustic fidelity to the farthings of our primitive life (alike in square measure and currency).

I have a letter from Edwin Cannan which runs in part:

Instead of saying "apparently A. S. invented the term," the 2nd impression [of his *Review of Economic Theory*] says "A. S. brought the term MS. into common use by writing his chapter". . . and in line 6 from the bottom it says "adopted" instead of "devised" and a prefatory note says the modifications have been made because "it seems likely that he took it from Quesnay and Mirabeau (see Oncken *Geschichte der National Ökonomie*, p. 335)."

Evidently the subject will stand further investigation, though it doesn't matter much whether A. S. invented or

only induced people to use the term. In either case it shouldn't be used in a totally different and very inconvenient sense.

With this last sentence I stubbornly agree against all comers, and the present chapter is devoted to a justification of the stand.

THE THING.

We may distinguish easily and naturally between mercantile theory and the mercantile system. There is no closer connection between the two than between Ricardo's doctrine of comparative costs and the free trade system of nineteenth-century England. Men could practise and profit from the one without comprehending the subtleties of the other. The mercantile system was the system of merchants in opposition to the system of feudal landlordism. We must not say "in opposition to the agricultural system," because no such system ever existed outside the gossamer of physiocracy. In the light of modern times and of countries overseas, we might indeed say "in opposition to the system of the frontier"—the system by which the American seaboard expanded into a continent of United States and by which Czarist Russia and their legitimate successors, the U.S.S.R., sprawled and sprawl from Moscow to Vladivostock. The mercantile system, with its roots in commerce and the sea (by 1700 a merchant of England had ceased to be thought of as an inland trader), rose to glory *pari passu* with the discovery and exploitation of the New World and the ocean route to the Old World. And Adam Smith, as we might guess, makes this his definitive point.

In the meantime one of the principal effects of those discoveries has been to raise the mercantile system to a degree of splendour and glory which it could never otherwise have attained to. It is the object of that system to enrich a great nation rather by trade and manufactures than by improvement and cultivation of land, rather by the industry of the towns than by that of the country. But, in consequence of those discoveries, the commercial towns of Europe, instead of being the manufacturers and carriers for but a very small part of the world (that part of Europe which is washed by the Atlantic Ocean, and the countries which lie round the Baltic and Mediterranean seas), have now become the manufacturers for

the numerous and thriving cultivators of America, and the carriers, and in some respects the manufacturers, too, for almost all the different nations of Asia, Africa and America. Two new worlds have been opened to their industry, each of them much greater and more extensive than the old one, and the market of one of them growing still greater and greater every day.¹

Characteristically, this crucial definition comes, not in the "Principles of the commercial or mercantile system" (Bk. IV, Ch. I), which is an analysis of mercantile theory, but in the objective historical survey of "Colonies" (Bk. IV, Ch. VII); and with supreme art he thus prepares the way for the crushing indictment of the "Conclusion" (Ch. VIII).

Note, first, what the system was. It was a type of imperial economy, the fruit of that overseas (not overland) expansion whereby Holland and England, followed tardily by the other great powers and by Germany last of all, reached imperial stature and economic power.

Note, secondly, who, as he sees it, were the pacemakers in the evolution: not the nations of Europe as such, but the commercial towns of Europe. They made the new world tributary to them: or as Mr. Gras would say, they became metropolitan to it.

Not Italy nor Spain nor France nor Germany, but Holland only, was the commercial schoolmaster of seventeenth-century England—when the merchant world was heavy with a colonial overgrowth that neither Holland nor England could carry for long. For Holland soon lost Brazil and England the American colonies in 1776. In the sixteenth century Germany was England's schoolmaster—witness the copper mines of Keswick: in the eighteenth century Huguenot France—witness Spitalfields silk, Black Country glass, and Ulster linen. But in the century or less between the death of Elizabeth and the year when Dutch William took the crown of England, Holland was the cynosure of neighbouring eyes and in particular of those of the sea-faring, soil-improving island which lay opposite to her across the North Sea and sailed with the same sea breezes west and south into the ocean.

¹ *Wealth of Nations*, II, 125.

Not Italy. Here were towns richer than any in Holland—Amalfi, Pisa, Genoa, Florence, Venice. Here was developed the apparatus of modern commerce, the Arabic notation, double entry book-keeping, bills of exchange, banks, the compass, the mariner's chart. From Genoa came many a brilliant explorer. And yet, lacking a system, Italy earned the saying that she "found everything and founded nothing." It is fashionable to deplore the Navigation Laws, but those who deplore them in imperial England or colonial Holland are asking for Hamlet with Hamlet left out. Even if Italy had been situate where Portugal is, on the fringe of the Atlantic Ocean, the result could not have been very different. For her city states had no unity and no system. They were held to imperial impotence by the disuniting shadow of ancient Rome and the disuniting presence of the medieval papacy. Therefore they never became a nation of trading cities: as Protestant Holland did. For having escaped from the domination of Spain, the Hollanders, in a brief generation, broke through the thin monopoly of Portugal and established a traders' empire in the Further Indies.

Not Spain. Spain, of course, was the first colonising power of Europe, first in time and first in bulk. She divided the outer world with Portugal as soon as it was discovered, and was assigned the more colonisable half. But empire was her ruin. For she put religion before business and somnolence before both. Having all the silver, she could not steal it in an age when piracy was the foster mother of trade. She displayed only a colossal power of declining to die; and that was because after conquering the natives she inter-married with them.

Not France, but only just not. It was at once the glory and the calamity of France that she sought to be in at everything and yet herself *en tout*; and herself gained the day. In the crises of her national life she sacrificed empire to *réunion*, and went on shedding overseas dominion from Quebec to Mauritius and the East until at last in 1830 she found in Algiers a new pathway of empire, a trans-Mediterranean land empire, which was a sort of imperial reunion, whereof the natives were made citizens of France and represented in

the Parliament of France. This is the empire which Lord Hailey's *African Survey* so successfully misunderstands in its 1662 pages.

Not Germany. Germany least of all. I agree, as I have said, with Edwin Cannan that it is a misfortune that the German historical school took hold of the concept of mercantilism and so re-cast it that they provided the fatherland with a place in the mercantile sun. Schmoller's mercantilism not less than Bücher's¹ is an economic bastard. The Germany of the sixteenth, seventeenth, eighteenth and early nineteenth centuries was, quite as much as Italy, outside the mercantile sweep, whether we are thinking of doctrine, policy or system of trade. If Germany was mercantilist, then mercantilism is just economic nationalism, and a good word wasted. Hamburg and Frankfurt had merchants, but these were not the progenitors of modern Germany. On the contrary, they stood out against it. Brandenburg made Prussia, Prussia made Germany, and Hamburg now is vassal to the steel and concrete of Heligoland and Kiel. Nor does the term become any more appropriate to Germany if we put before economic nationalism adjectives such as "aggressive"; for in Europe all economic nationalism has been aggressive. And if we call the Prussian brand of economic aggression mercantilist, we throw dust in our eyes. For Prussia carved her way to empire not by trade, but by administrative capacity and military force.

This is well illustrated by her record in the Pacific. Caesar Godeffroy & Co. in the person of their agent, Theodor Weber (whom R. L. Stevenson dubbed a mixture of Machiavelli and caveman) harried the Samoans of the 1860's, 70's and 80's into a respectful fear of himself and his country.

Weber was in short a master of men, a man whose actions and methods the men on the Pacific fringe, and even the disillusioned natives, could understand and appreciate. He managed them, if not gently, in a way which came within their comprehension. His knowledge of men, brown and white, made him the dominant figure in the Central Pacific, made Germany the economic master of the Pacific in the 70's and

¹ "It found its typical development in the economic policy of Colbert." (K. Bücher, *Industrial Evolution*, p. 136.)

80's, and made German consular interests the most clearly and strongly asserted.¹

What, then, we need, and what the new interest in Dutch studies assuredly will give us before long, is a history of the mercantile system, as practised by Holland. Mr. J. S. Furnivall, with his mind on a different aspect of the colonial problem, has recently revealed the rich store of knowledge which awaits a Dutch Schmoller.²

It is equally undesirable to confuse mercantilism with protectionism, or with that strange thing called by Cunningham "Parliamentary Colbertism." The two things were different, sometimes rival and sometimes complementary. Mercantilism stood for vigorous interloping and keen resentment of those who interloped upon the interlopers, i.e. free-traders. This was Holland's attitude, and England's by conscious imitation. But protectionism is the effort to retain the trade which is naturally yours, to supply with manufactures and merchandise the people who live on your own soil and feed you. It was Colbert's policy for the France of his day, Alexander Hamilton's policy for the new United States, and List's policy, learnt in America, for a renaissant Germany. Protection assumes a hinterland of agriculture and raw materials with which and for which industry can be set up. Doctrinally it rests on the protection of economic infancy. Medieval England had protected herself for this cause against the Italians and Hansards; but after 1588 she was mercantilist, not protectionist. Like Holland, she had no great hinterland. She could only grow great overseas. That meant Empire or permanent exiguity. By contrast, the need of seventeenth-century Germany and eighteenth-century France was peace and order within their ample borders. This they gained by drastic means—the one by absolutism, the other by revolution. But there is next to nothing of the merchant mind in either. There is more to be learnt from the Netherlands than from Germany or even from France concerning the mercantile state and the real purpose of the mercantile system. With mercantile theory it is different. For there can be tons of theory to

¹ S. H. Roberts, *Population Problems in the Pacific*, p. 49.

² J. S. Furnivall, *Netherlands India, a Study of Plural Economy* (1939).

an ounce of practice. We in England got virtually the whole of our mercantile theory from the peculiar circumstances of the East Indian trade, and more or less left it in the keeping of Mun. But it was very meet and proper that the scholars of Europe should enlarge the view: as they have done and are still doing with a persistence to which there seems to be no end. I would beg only that they tell us clearly why they exclude Holland from their mercantile quiver. Is it that Holland had no coal? For that is the only great economic difference which I can see between Holland and England, and this difference is of a manufacturing rather than a mercantile order.

CHAPTER III

CAPITAL AND CAPITALISM.

THE WORD.

Edwin Cannan, always a stickler for words, started a chase after the origin of "capital" in the *Harvard Quarterly Journal of Economics* in 1921 (Vol. XXXV), and re-states his finding in his *Review of Economic Theory* (1929), pp. 132-143. The late R. D. Richards (who gave this lecture course during my absence in India, 1935-6) took up the running in 1926 (Vol. XL). Later in the same volume Mr. H. R. Hatfield made the kill. All three are engaged in running the word to earth through early treatises on accountancy. Richards changes Cannan's J. Mellin to J. Mellis, whose book is of 1588, the year of the Armada; and Mr. Hatfield takes us to "A notable and very excellente woorke" by one J. Y. Christoffels, of 1543, "translated with great diligence out of the Italian tong into Dutche, and out of Dutche into French, and now out of French into Englishe, 1547." This work is in part the translation of an Italian treatise in Latin by Lucas Pacioli of 1494, and unhappily the only copy of it in English was lost from the Reval Library during the War of 1914-18. But there is reason to believe that the English translation used the word capital, when rendering the following from French into English:

"Et par ce mot Capital entendrons les biens aduenus par traictées de mariaiges, le trespass daulcun, ou aultrement & ce que ung marchant pourroit auoir en garde, comme aussi marchandise, soit a compaigner, ou par soy seul."

THE THING.

Every economic treatise defines capital, and it has been defined in a host of ways, but I know of none which next proceeds to a definition of capitalism. This term is reserved for the language of history or of abuse. It is not listed in Webster's Dictionary, nor indexed in the *D.P.E.* (*Dictionary*

of Political Economy). The *O.E.D.* gives 1854 as its earliest reference. Burke, Adam Smith's contemporary, talks of capitalist, and so does Ricardo (*Principles*, § 112, "If corn is lowered in price . . . the condition of the capitalist will be improved"). But to the best of my belief, Adam Smith does not use "capitalist," much less "capitalism." He has "land" and "landlords," "capital" and "capitals," "merchants" and "mercantile system" (not, however, mercantilism): and Book II closes with that strange disputable chapter "Of the different Employment of Capitals." Capital in the plural he almost personifies. They rush around, like electrons, in search of profit: deny them their reward, and they will vanish, to reappear in a more congenial atmosphere. They are at once nervous and importunate. There is nothing heavy or immobile in them. They are not the case-mates of a business citadel, but nomads' tents, which, if there is an alarm overnight, will have been struck by dawn. How different is Capital with a big C. This is a singular and ponderous substance, an oppressive benefactor, which is for ever setting labour in motion and at the same time giving notice of imminent exhaustion. It is the fuel, the GO sign of manufacturing industry: or to employ the metaphor of its day, a fixed, yet fertile fund.

Now in a society where capitals and Capital thus respectively behave, there is room clearly for a further word; and with one accord latter-day writers have styled the society of Adam Smith capitalistic and its essence capitalism. There is some dispute, indeed, as to how far back we shall carry the style. Obviously not to the origin of money and stock; for then there is no pre-capitalism. Historians, with some consensus of usage, apply it first to that stage of development at which industry emerges from gild control, and agriculture from the common programme of the open fields. It is *inter alia* a process of liberation. In industry it is distinguished by the emergence of the merchant capitalist; in agriculture by the emergence of tenant farming for profit. Typical of modern usage is Professor Earl J. Hamilton's *American Treasure and the Rise of Capitalism* and Professor R. H. Tawney's *Religion and the Rise of Capitalism*. The concern of both is post-Columbus and post-Luther. There

was some capitalism in the middle ages, these authors will tell us, but the Discoveries and the Reformation launched it on its sovereign career. The New World, with its silver, its spaces and its (imported) slaves, was to it as the food of the Gods.

A well-informed proletarian, if asked for an adjective to place before Capitalism, would probably suggest "profit-making." Applied to agriculture the adjective awakens true memories. For there was a time when, by and large, agriculture was for subsistence and not for profit; and such agriculture is still with us. But applied to trade and industry it has no point. For all trade, from Stourbridge Fair to the modern trinity of Woolworth, Sainsbury and Marks and Spencer, is based on the excess of income over outgo, which is profit, unless it is reversed into loss. Nobody "trades" for subsistence; for this would mean that he traded with himself, which is the negation of trade. And though landlords sometimes venture rashly into commercial enterprise, I have yet to hear of one who has done so (as he sometimes does in the business of farming) for the purpose of beautifying the premises on which he works or for the pleasure of seeing things made under his eyes. But the disrepute into which profit has fallen in this twentieth century is an obstacle to the removal of those disharmonies which it is convenient to ascribe to "the failure of capitalism" or "the capitalistic chaos." For if profit is so very disreputable, there is no logical alternative to the communism of Soviet Russia.

I have followed this thought to its conclusion, because I am sensible of some dichotomy in myself. As an economist I study the economics of co-operation, which historically is a protest against capitalism. As a historian I walk contentedly in its company; and I could no more part with it than could the theorist with his law of diminishing returns.

Bearing this dilemma in mind, I return to Professors Hamilton and Tawney, to see if capitalism was a leper from its birth, and I begin with Professor Hamilton.

Adam Smith teaches that the Discoveries, by widening the market, increased the world's abundance and gave scope for an improved technique; and Professor Hamilton reinforces

these truths, not by contraverting Adam Smith (as the latter undoubtedly would have contraverted him for daring to extol money), but by way of supplement. American treasure, he shows, fed and fertilised sixteenth-century Europe. For the nations stole it or traded it out of Spain, and then took it to the East, to exchange for spices and the like. It was a rash proceeding to the minds of those who were at the tail end of centuries of slow deflation. But when there is a great craving, as there was for eastern spices, a way will be found to satisfy it, and when there is a way, a doctrine will follow (just as it did over the taking of interest) to justify that way. Thomas Mun (1571-1647) wrote the justification under the title *T.M. A Discourse of Trade, from England unto the East-Indies* (1621). Thereby he gave credence to the legend that the treasure shipped to the East would one day return with interest. The expanded argument of his larger work *England's Treasure by Foreign Trade*, published posthumously in 1664, took him two-thirds of the way to Adam Smith and free trade; and that is why Adam Smith had so overwhelming an advantage in his controversy with Mun and his school, with the mercantile "they" of the *Wealth of Nations* I, 398-9. Twitting them with subscribing to the popular notion that wealth consists in gold and silver, he reduced their *credo* to two pages of rigmarole, and this done proceeded to challenge their economic patriotism: they neglected the home trade in favour of a distant foreign trade, because it yielded or was supposed to yield a balance of treasure. The really weak joint in the armoury of English mercantilism was that the East India trade did in fact take treasure away and did produce that dreaded thing, an excess of imports over exports—with the paradoxical result that in the eighteenth century the East India interest, for which Mun wrote, was the free trade interest of the day, the would-be importer of silks and cottons, in opposition to the vested interest of wool.

Professor Hamilton is on safe ground in tracing a causal relation between New World treasure and the eastern trade and the rise of modern capitalism. For Portugal, Holland, England and France, the countries into whose hands the treasure came, monopolised this trade and therefrom secured

the first really great fortunes ever earned in commerce. In so doing they, and in particular England, pioneered joint-stock enterprise to its maturity. In England two trading companies, famous above all others, testified to the new power of capital, the East India Company and the Hudson's Bay Company; and on their heels followed the company of London merchants, who in 1694 established the Bank of England. If you consult Gonner's index to Ricardo you will note under Capitalist, "see Stockholders"; and though on consulting the letter S, you find that Stockholders are not indexed, the idea at any rate was happy. For the weight of capital, which had been with the East India Company in 1600 and the Bank of England in 1700, was shifting now to those portentous Funds which in 22 years flattened the life out of Napoleon.

Thus in England one line to capitalism is through Mun and mercantilism. The other line, it has been suggested, is through Calvin and nonconformity; howbeit, I freely confess that in following Professor Tawney through *Religion and the Rise of Capitalism*, I feel like the skater who expects to go through the ice at any moment.

I begin with a prejudice in favour of Professor Tawney because he says those catty things about capitalism to which I am inclined in my co-operative moods; but whether it is history, either in his subtle hands or in the heavier fist of Max Weber, I greatly doubt. For the argument in Weber's *Protestant Ethic and the Spirit of Capitalism*, of which Professor Tawney's essay, in part, is a sympathetic expansion, starts with an anachronism from which it never recovers. We are introduced to the business parables of an easy-living, rationally-minded colonial of the eighteenth century, Benjamin Franklin; and Franklin's spirit, we are ordered to believe, is the spirit of sixteenth-century Geneva, as Calvin left it. If one believes also in reincarnation, very well; if not, very bad.

Max Weber trickled into the consciousness of English historians in a somewhat curious way. I only got wise to him, I blush to say, in Tawney's Essay. Next, I read the English translation of Weber's *General Economic History*, and all but lost my faith in the possibility of general

history.¹ In or about 1930, when Weber's *Protestant Ethic* appeared in English,² I read that, too; but I had already digested the meat of it in Tawney, and therefore the dish was stale. Finally, I was called upon to adjudicate the Essay which Mr. H. M. Robertson subsequently published, *The Rise of Economic Individualism*, and the effect of this was to make me doubt whether there was much to be said either for Weber or for Professor Tawney. But most economic historians think otherwise. Thus the reviewer of Weber's *General Economic History* (*Economic Journal*, September, 1928) observes:

The final chapter contains a summary of Weber's famous discussion of religion in relation to economic ethics and the coming of capitalism. All his work (among which the celebrated Essay *Die Protestantische Ethik . . .* stands out) is by common consent excellent, but, as Mr. Tawney has shown in *Religion and the Rise of Capitalism* (pp. 319-21), it is not completely beyond criticism.

Mr. Robertson's short concluding chapter seems to me unanswerable; and the main points of his preceding argument are these:

(1) The Puritan command, "be content with your calling," was not an invitation to amass wealth, but a warning against worldly ambition. "The spirit of capitalism was responsible for a gradual modification and attrition of the Puritan doctrine; and this attrition had barely begun in England before the Restoration."³

(2) The tolerances of Calvin and his English disciples are matched at every turn by equal tolerances among the Catholics. Thus a French (pre-Franklin) Jesuit

¹ The Editor, Professor F. H. Knight, pleads that "the significance of the book lies in its interpretive brilliance rather than accuracy of detail," and the German editors explain that the lectures on which the book is based were delivered unwillingly in response "to the pressing solicitation of the students, for his interest was entirely centred on the great sociological labours on which he was engaged." He died in the 1920's.

² When I came in this book (p. 65) to the distinction between "the elegant gentlemen of Liverpool with their commercial fortunes handed down for generations" and "the self-made parvenus of Manchester," I said to myself "rot! Liverpool was newer than Manchester, and made its money from the slave trade long after the Bayleys, the Touchets and their like had enriched Manchester with culture and mercantile wealth."

³ H. M. Robertson, *Rise of Economic Individualism*, p. 27, quoting an obviously important book, B. Groethuysen, *Origines de l'esprit bourgeois en France*.

writes: "There is no incompatibility of service and business. . . . One can work fruitfully for God, for men and for oneself."¹

(3) Following Sombart and Cannan, Mr. Robertson ascribes the essence of the capitalistic frame of mind to Italian accountancy. "Capitalism without double-entry bookkeeping" (said Sombart) "is simply inconceivable." "Reliance on good books" (says Mr. Robertson) "meant more than reliance on the Good Book. The rise of the capitalist spirit is the same as the rise of economic individualism—something which took place independently of Church teaching, on the basis of commercial experience."²

(4) Calvin wrote, "By no testimony of scripture am I resolved that usurers are altogether condemned," but he did not give them promiscuous approval. His Letter on Usury was of 1575. Two centuries later Adam Smith was still arguing for recognition-cum-control.

(5) All the churches, faced with the emergence of the new type of business man which sprang up in the post-Columbus world, gave much the same type of answer; and if anything, the Jesuits were more worldly-wise, in the reputable sense of that term.

(6) It is when the imputations of the economists get into the hands of the "Smart Alecs" of literature that they convey the maximum of error. Mr. Aldous Huxley derides "those detestable Puritans to whom we owe, not merely Grundyism and Podsnappery, but also (as Weber and Tawney have shown) all that was and still is vilest, cruellest, most anti-human in the modern capitalist system." Upon which Mr. Robertson observes with rare restraint, "To follow this modern way of connecting capitalism with the religion founded by Calvin is to follow a mere will-o'-the-wisp."³ But the lure of *ignis fatuus* is irresistible alike to the novelist and poet.

"Sweet Auburn, loveliest village of the plain,"
etc. etc. etc.

¹ H. M. Robertson, *op. cit.*, p. 30.

² *Op. cit.*, pp. 53, 56.

³ *Op. cit.*, p. 208.

CHAPTER IV

THE HISTORICAL SIGNIFICANCE OF MONEY

The quantity theory of money was the doctrinal answer in a season of monetary tranquillity to a chapter of long bewilderment. But like Ricardo's theory of foreign trade, it did not play a significant rôle in the history of money itself. For it moved always in the upper atmosphere of pure theory. The historical problems were more pedestrian. What should be the standard metal? Is a rise of prices a good or bad thing? Why do prices fluctuate? Why is the foreign exchange favourable or unfavourable? Questions of this order assumed a new importance, if they were not asked for the first time, in the second half of the sixteenth century, when two phenomena showed up side by side.

The first was the nation state, strongest of all in the monarchy of France, of which the Emperor Maximilian said that, while he, Maximilian, was a king of kings because no one felt bound to obey him, the King of France was a king of beasts because no one dared to resist him. Therefore, the French king was able to work his will on the currency, crying it up and crying it down, according to his necessity. The final length to which this could be carried was shown by John Law in the hectic years of 1717-20. It was a tremendous exercise of sovereignty to declare by royal order that on a given day the coin in every Frenchman's pocket should pass for 40 or 50 or 80 or 100 per cent. more than yester-year. Yet this is what Law took power to do, and what earlier kings had done, though less suddenly. It is, therefore, not surprising that the stolid burghers of Holland demonetised the shifting currency of this and other lands by establishing in 1609 a Bank of Amsterdam, which issued a bank money, with a full backing of precious metal, that varied in value only as the precious metals themselves varied. But Francophile kings of England watched their cousins of France with envy, and one of them was strong enough to impose base metal on his subjects, namely, Henry VIII of all-round disreputable memory. The debasement endured through the short reign of his luckless son, but then the people struck, and Bloody Mary had to return to the old fineness.

Hence the pound sterling of England had a history vastly different from that of the "livre tournois." When Adam Smith wrote "the English pound and penny contain(ed) at present about a third only, the Scots pound and penny about a thirty-sixth; and the French pound and penny about a sixty-sixth part of their original value" (I. 29). And so in 1776 the French pound, originally the equal of the pound sterling, was worth only about 11d., and shortly afterwards this pound was to be converted into the franc of (roughly) 10½d.—the franc which we knew in August, 1914. It must be emphasised that the reduction in England to one-third of the old content arose not through debasement of fineness, but through diminution of weight, and that this diminution proceeded slowly, the new coin being from time to time reduced in size to conform with the weight of the coin in actual circulation.

The second phenomenon was the silver of the New World and more particularly of Bolivia, where Potosi, a mountain of pure silver, was discovered in 1545. It was a mountain of silver and not of gold; and the new metal was the general cause (over and above the specific cause of diminution in the weight and fineness of coin, which varied in each country) of a higher price level than any which medieval Europe had known. In the middle ages life was short, famine frequent, and there were no index numbers. Why were prices rising? What a problem to confront a world new to the idea of economic variation, to a world bound morally to the doctrine of fixed price, to a world which without knowing it—so slow was the course of it—had been suffering from a deflation extending over centuries. Adam Smith's Wheat Tables go back to 1202, and in terms of the money of 1776, read:

		£	s.	d.
1202-1286	Wheat prices <i>per</i> quarter of 8 bushels	2	19	1½
1287-1338	" "	1	18	8
1339-1416	" "	1	5	9½
1423-1451	" "	1	1	3½
1453-1497	" "	14	1	
1499-1560	" "	10	0½	
1561-1601	" "	2	7	58 ¹

¹ *Wealth of Nations*, I, 250-4, where some tiny mistakes in the author's arithmetic are corrected by the editor.

It is, however, altogether wide of the mark to say that "to Adam Smith and to his predecessors the history of prices consisted of this one incident."¹ The Digression on Silver and especially the following section (*Effects of the Progress of Improvement upon the Real Prices of Manufactures*) show that he was alert to the non-metallic factors in the price equation. On the metallic side, furthermore, he was precisely right in point of time. "When Adam Smith, with the scanty material at his command, concluded that English prices did not commence to rise before 1570, that the price revolution ran its course by 1636, and that silver declined in value by two-thirds, he exercised uncanny powers of penetration."²

To the non-economist the lateness of the price rise may be puzzling. But a mountain of silver cannot raise the price level by magnetism. It has first to pass into coin or bullion, and enter thus the circle of foreign trade; and this took time. By piracy, smuggling and legitimate trade the trading nations got hold of Spanish silver. This gave a fillip both to their manufactures and foreign trade; and thereby they got themselves into the desired position of exporting goods and services in return for luxuries and solid cash. In a long encounter, England was the principal winner, Spain the solitary loser.

The country [Spain] first became suffused with money, then the surplus metal was fabricated into plate or sent to England, France and other countries. The principal portion of this overflow went to England, first because of the dynastic relations between the two countries, and second, because as Spain had interdicted her exportation of the precious metals either in the form of coin or bullion, it was easier to export them surreptitiously by sea [to England] than by land [to France].³

The Spanish Treaty of 1630 was important to the rise of the goldsmith bankers of London, because it brought to them great profit from the converting of Spanish coin or bullion into English coin. There was, however, no attempt to

¹ G. N. Clark, *Science and Social Welfare in the Age of Newton*, p. 55.

² Earl J. Hamilton, "American Treasure and Foreign Trade," *Journal of Economic and Business History*, I, No. 1, 32.

³ A. Delmar, *Money and Civilisation* (1886), p. 222.

repeat the experiment of Queen Elizabeth in coining special silver for India; for "the Asiatics" did not like her effigy: she was less voluptuous than the Maria Theresa Dollars which the Bedouin Arabs took with them to bed. And the unromantic Indians preferred their own rupees both to English coin and the Spanish dollar itself.

But why was it that the post-Reformation world set so high a value on yellow gold and white silver? In themselves they had some value for ornament and temple service. But their main lure lay in the fact that by convention they were an instant avenue to the command of persons and things; and this convention rested on their scarcity. The kings who possessed them could buy munitions and hire soldiers. The Jews, who for their unbelief had been debarred from owning lands or flocks, the old badges of money, found themselves exiled to a paradise of money-dealing. When by the legislation of 1663, permitting the export of bullion and foreign coin, and that of 1666 making the process of coinage gratuitous, the money market of England was launched on its sovereign career, England's age of high capitalism had arrived: and in due course, namely, in 1694, the Old Lady of Threadneedle Street was set upon the pedestal from which she never descended. If industry did not take the glorious chance thus afforded to it for a revolution of itself, it would not be her fault. Industry, however, did.

Yet the sequence was preposterous enough, and it challenged reasoning men to go over the ground and rationalise it. Adam Smith made the attempt. Never was anything so true and so unfair as the terms of his assault on the monetary doctrine which the money users of his day, the merchants, evolved, to account for their own case on the evidence of their own experience. They knew—and it did not matter to them whether it was childish or not—why mankind delighted in treasure of coin and ornament and plate. It was not merely for their beauty or utility, but because also they conferred an immensity of purchasing power upon their lucky owners—one shining cup of yellow gold, good for ten thousand quarters of wheat, one like cup of silver, good, perhaps, for near a thousand; and this in a currency system in which gold and silver could pass into the status of coin

at no cost to themselves, and out of it by easy evasion or the barefaced taking of a simple oath.

But to set value on a thing (and that means to go after it with intensity of effort) just because it is rare, is surely fatuous. Sensible men go after things which are in abundance or can be made so. And this is the paradox of money which neither Adam Smith nor any of his successors has resolved. All that we ask ideally of money is that it shall serve as a good measuring rod of changes in the abundance or scarcity of things: as a rod which in measuring does not lash us with its thong. All that we have attained in practice is a combination of rare metal and in itself worthless paper, which depreciate just not fast enough to cause mankind to lose faith in them. Mr. Keynes, I think, would say that, if money did not thus behave, the indebted many would revolt against the credit-giving few and bring capitalistic society to the ground. Maybe, therefore, the new gold of Soviet Russia, which threatens to be as prolific as the Rand, will be the instrument by which Western capitalism gets a new lease of life. Heil Stalin!

CHAPTER V

THE MEANING OF MEDIEVAL MONEYS

At the Conquest and until 1300 the pound sterling (£) and the pound weight (lb.) were identical. But the weight was a Tower pound, which weighed only $11\frac{1}{2}$ ozs. Troyes measure. A penny was $\frac{1}{240}$ part of the pound sterling; and accordingly, the silver penny of the Conquest contained 24 grains Tower measure and $22\frac{1}{2}$ grains Troyes measure. The Troyes pound (lb.) "was not introduced into the mint of England till the 18th of Henry VIII,"¹ but it is not possible to measure weight over a period of time, unless we use the same weight. Therefore, in the table which follows, column 1 gives the weight of the silver penny in Troyes measure throughout; and column 2, constructed by myself, gives the number of times by which the weight of it in a particular year exceeded its weight in 1601. This number of times I call the multiplier.

Reign and Year	Grains (Troyes)	Multiplier
William I 1066	$22\frac{1}{2}$	3
Edward I 1300	22	2.9
Edward III 1344	$20\frac{1}{2}$	2.6
" 1351	18	2.3
Henry IV 1412	15	2
Edward IV 1464	12	1.6
Henry VIII 1527	$10\frac{1}{2}$	1.4
" 1543	10	1.3
Edward VI 1552	8	1.03
Elizabeth 1601	$7\frac{1}{2}$	1

Thus the penny piece of 1066 was the weight of three penny pieces of 1601, and the penny piece of 1412 was the weight of two penny pieces of 1601. Now, from 1601 to 1816 the weight and fineness of silver sterling was unaltered. Therefore Adam Smith, in order to convert the money of earlier days into the money of his time, had to multiply the rate for 1066 by 3, that for 1412 by 2, that for 1601 by 1: the

¹ *Wealth of Nations*, I, 28.

rates intermediate between 1066 and 1412 by figures intermediate between 3 and 2, and the rates intermediate between 1412 and 1601 by figures intermediate between 2 and 1.

The historical process of "deweighting" was slow but continuous. At $7\frac{3}{4}$ grains the silver penny was inconveniently small, and none were issued after the reign of Charles II. From 1660 onwards the commonest silver coin was the shilling, which was first struck in the reign of Henry VII. After 1816 the silver currency, having been reduced by the Act of that year to a token coinage, henceforth derived its value from the gold sovereign of 20s.; and since there was 20–21 as much gold in Huskisson's sovereign of 20s. as in Adam Smith's guinea of 21s., the money of Adam Smith's time was the money of Huskisson's time, just as the money of Huskisson's time was the money of our time until September, 1931.

Therefore, if we wish to compare medieval with modern prices, the first thing to be done is to multiply them for the year in question by the multiplier given above. Any further multiplication introduces a comparison of purchasing power, which may either be rough and ready or statistically precise. But if we apply the same further multiplication to the prices of goods as to the earnings of labour, we are using a general index number of a very tricky kind, and one which obscures a fundamental fact of price history, viz.:—that while money has lost value relatively to commodities in general, commodities in general have lost value relatively to the labour of man.

However, an amalgamated multiplier of this type, which registers changes in purchasing power as well as in metal content, has for long been common; and its employment by historians appears to date from the eighteenth century, and in particular from David Hume (1754–61) and Lord Lyttleton (1769). As these writers handle the multiplier, it is a very museum of muddle. They whack up medieval prices by 10, 15, 20 times or even more, in order to make them look like the prices of their own day, as they believe these to be. The ingenious Hume, who is a standing warning against the philosopher turning historian, concludes unblushingly that "we are to conceive" (on the suppositions he has made)

"taking all circumstances together, every sum of money mentioned by historians as if it were multiplied more than a hundredfold above a sum of the same denomination at present."¹ This was too tall for Arthur Young, who in his *Political Arithmetic* of 1774 adopted 10. For this loose thought there is no warranty whatever in the pages of the famous Kingsman, William Fleetwood, Bishop of Ely, who set the price ball rolling.

Why did the London School of Economics come to Cambridge when the war broke out? Why at Cambridge do the economists bristle and jostle in the ancient and royal foundation of King's? I think I know. Thirty years and more ago I used to skip across the sacred grass of the front court at midnight and look back at the clouds racing over the pinnacles of the chapel; and I thought of the tragedy of that saintly life, lived when England was turning from the things of the spirit to the things of the earth. But inside the dining hall of King's post-Reformation England hangs on its lighted walls; and a massive portrait, central to the dais, contains not the Founder, but Sir Robert Walpole, Fleetwood's junior by 20 years. It was Fleetwood who showed the way to Walpole and all that Walpole epitomised.

In 1707 Fleetwood published anonymously his *Chronicon Preciosum or an account of English money, the price of corn and other commodities for the last six hundred years. In a letter to a student in the University of Oxford.* Professor G. N. Clark² has shown very prettily that the student under advisement was a certain Mr. Worth, Fellow of All Souls, but that the expanded title of the second edition of 1745 fits the author's College of King's, since this was founded on 12th February, 1440-1, whereas All Souls was founded in 1437. The expanded title omits the reference to a student of Oxford and ends: "showing from the decrease of the value of money, and from the increase of the value of corn and other commodities, etc., that a Fellow, who has an estate in land of inheritance or a perpetual pension of £5 per annum, may conscientiously keep his Fellowship . . . though the statutes

¹ D. Hume, *History of England*, I, 203.

² *Science, and Social Welfare in the Age of Newton* (1937), Appendix pp. 147-54.

of his College (founded between the years 1440 and 1460) did then vacate his Fellowship on such condition." Note that Fleetwood by 1745 had been dead for 22 years.

The central finding of the *Chronicon Preciosum* is that the multiplier (i.e. the amalgamated multiplier of metal content change plus change in the purchasing power of metal) required to raise the money of T. R. Henry VI to that of 1707 was all but 6. But Fleetwood does not compare 1437 or 1441 with 1707: he was too good a statistician for that. He compared the average of the 20 years, 1440–1460, with the average of the 20 years before which he wrote, 1686–1706.

A period of years he rightly considered vital to any attempt "to see how much of the modern Money will be requisite to purchase the same Quantity of Corn, Meat, Drink or Cloth now-a-days." For (he goes on) "to this End you must neither take a very dear Year, to your Prejudice, nor a very cheap one, in your own Favour; nor indeed any single Year, to be your Rule; but you must take the Price of every particular Commodity for as many Years as you can (20, if you have them) and put them all together; and then find out the common Price; and afterwards the same Course with the Price of Things, for these last 20 Years; and see what Proportion they will bear to one another; for that Proportion is to be your Rule and Guide."¹

This he did, and found as follows:—

WHEAT

If for 1440–1460 the price of wheat was 6s. 8d. per quarter, and if for 1686–1706 the price of wheat was 40s. per quarter, then £5 (the figure under discussion) would buy 15 qrs. of wheat then, but £30 would be required to buy that much now.

Multiplier exactly 6.

OATS, BEANS

Multiplier in both cases again 6.

Note the "ifs." If wheat, if oats, if beans, etc., etc. These do not mean that the figures are a guess, but are a way of saying "taking the price at"; and if we check

¹ Ed. 1745, pp. 135–6.

the prices which he takes, we find that they were approximately the actual prices.

Thus for wheat he has, for 1440-1460, 12 references, which average out at 7s. 3½d. per quarter. For 1686-1706 he has two continuous price series, one for Lady Day and the other for Michaelmas, which two he put together and halved; and dividing this total by 20 (the number of years in the series) we find it to be 44s. Thus the exact ratio was 7s. 3½d. to 44s.: and this is almost 1 to 6, the ratio of the hypothesis.

For other commodities there was no such wealth of figures, but he did his best.

ALE

"Time of your founder, 1½d. per gallon [Ye Gods!]: since you were born, 8d."

Multiplier, 5+ (or in his words "5 times more and a little over.")

CLOTH

Here he takes the cloth in a doctor's gown: "then at 3s. 7d. a yard, £4 16s. 9d.: now at 18s. a yard, £25." These old gowns were very voluminous.

Multiplier, about 5.

BEEF, MUTTON, BACON AND OTHER COMMON PROVISIONS OF LIFE

Here from isolated records, "I think I have good reasons to believe (they) were six times as cheap in Henry VI's reign as they have been these last 20 years."

After these comparisons, commodity by commodity, but by commodities only, he reaches his conclusion in the following words:

"And therefore I can see no Cause why 28 or 30 l. per An. should now be accounted a greater Estate than V l. heretofore was between 1440, and 1460."¹

The whole argument is a model of exactness and caution. He compares commodities which at both periods would be substantially the same: the national food and feed stuffs

¹ *Op. cit.*, p. 137.

and the national drink. For clothing he takes a garment of great antiquity, which would be familiar to a University man. And he does not bog himself in a multiplier which professes to equate the earnings of labour as well as the price of goods. Had his successors followed this cautious lead, they would have written true price history and refrained from skating on the thin ice of interpretative impressionism. I was hoping that Sir William Beveridge would dedicate his *History of Prices and Wages* to this father of price statistics from King's College, Cambridge.

CHAPTER VI

THE STANDARD OF VALUE

Gresham's law that bad money drives out good was enunciated in 1858 by Henry Dunning McLeod in his *Elements of Political Economy*. He coined it presumably from his reading of the advice which Sir Thomas Gresham gave to Queen Elizabeth anent the reform of the currency and the management of the foreign exchange. It is therefore at the outset a problem of Tudor history, but it was of enduring significance; and the two aspects of most importance after 1600 are its relation (a) to the adoption of the gold standard in England, and (b) to the emergence on the money markets of Europe of an international bank money. If the sovereign debases the currency and gives his royal stamp to good and bad money alike, the good money will move to countries (or uses) where it can fetch its intrinsic bullion value, and the bad will stay behind. Similarly, and not less certainly, if two metals have been circulating side by side and the sovereign gives to them a relative rating which conflicts with that of the bullion market of the world, the metal which he overrates will enter his country and the metal which he underrates will leave it. The law in this case reads, "overrated money drives out underrated"; and it has the advantage of not being a paradox. For the history of public finance in Europe 1600 onwards centres round the successful attempt to replace bad money by good; and the success may fairly be epitomised in the statement that with right policy good money will drive out bad, thus reversing Gresham. It is convenient to take relation (b) first.

When Antwerp succeeded Bruges as the clearing house of trade between the Mediterranean and the Baltic, it built for itself a Bourse, and thereby became a Lancashire and London in one. It was already a great port with a rich textile hinterland, and the Bourse added financial eminence. To assist its purpose the Bourse devised a system of "permission money," admitting only reputable coins and valuing these according to their metal content. Merchants

stipulated for the payment of bills in permitted coin ($\frac{2}{3}$ gold, $\frac{1}{3}$ silver); and such was the convenience of the permitted money that it commanded a premium of 2-3 per cent., and even more in times of crisis.

Stage two came with the establishment of the Bank of Amsterdam 1609, by which date wars and burdensome public finance had dislodged Antwerp from its brief primacy. The understanding of this bank is a difficult matter, and to explain it briefly is more difficult still. But happily we have two authorities of the first rank: Adam Smith, *Wealth of Nations*, Bk. IV, Ch. 3, Pt. I, "Digression on the Bank of Amsterdam" (I, 443-62); J. G. Van Dillen, *History of the Principal Public Banks* (The Hague, 1934), pp. 79-123. The Bank of Amsterdam was the great bank of the mercantile era, and therefore the discussion of it occurs properly in that book of the *Wealth of Nations* which examines the Mercantile System. Its designation (by Dutch writers) is Amsterdam Bank of Exchange. It was not a Bank of Issue, such as was the present Netherlands Bank founded in 1814. It was not a Credit Bank (though it made some heavy loans, especially to the Dutch East India Company, as did the Bank of England to our own East India Company). It was not a Deposit Bank for the generality of Hollanders. It was a metal-dealing money-economising bank; and incidentally to this, it supplied its select clientele of 2,000 to 3,000 merchants with a clearing service (*giro*), which was gratuitous till 1683. Finally, it was almost to the end true to its boast that "for every guilder, circulated as bank money, there is a correspondent guilder in gold or silver to be found in the treasure of the bank."¹ In 1819 it was dissolved by royal decree, having been irreparably hurt by the public misfortunes of Holland in the Napoleonic era; and its mantle passed to the Bank of Hamburg, which began to grow rapidly from the very year, 1789, when the Bank of Amsterdam's bank money lost its "agio" or premium. That the Bank in its earlier days of strength could make loans without violating its first principle was due to its undistributed profits, which had accrued, more especially, from its handling of precious metal and foreign exchange.

¹ *Wealth of Nations*, I, 450.

The young Republic of 1600 was not so strong that it set out with the task of supplying Europe with an international bank money. It arrived at this position in the course of supplying its own people, in conjunction with the provincial mints, with a reputable metallic coinage. This money was required for the internal trade, and, in the form of trade guilders, for the export trade to the colonial empire. At first the export side of its work was frowned upon, but its profitableness, and the need of a commercial country like Holland for it, caused the early restrictions on the handling of gold and silver for export to be modified and finally withdrawn. This happened about the time when England, by the Act of 1663, was taking a similar course.

The word "agio" means ease: which is the verbal opposite of disease. Hence we can say that in Dutch history ease-money drove out disease money. The agio was not over bad coin, for coin was only taken at its bullion value, but over the good minted coin of Holland itself and reputable foreign coin recognised by Holland. It settled down to a point around 4 per cent. plus; and it was held to somewhere between 4 and 5 per cent. by careful management, which in detail was not unlike the modern method of Council Bills and Reverse Councils employed by the Secretary of State for India for the protection of the rupee. The figure of 4-5 per cent. was reached historically by the declension in the specie value of the new guilders, "current money," in relation to the older heavier guilders, "heavy money." In this heavy money the Bank kept its accounts. If the Dutch mints had allowed the depreciation to grow, the bank agio must have become greater. Now, merchants were willing to handle their affairs in this bank money, even when it was inconvertible into cash on demand (as certainly was the case in the eighteenth century) because of its high convenience. There was the service of clearing, which was free or nearly free, and no risk of loss from fire and robbery. Hence the Government was able to enact that all bills above 600 guilders should be discharged in bank money.

The Bank made no great profit from discounting and loans; it left this work to the private merchant bankers. It did not allow overdrafts. It did not issue notes. But it engaged in

the acceptance business; and it dealt heavily in gold and silver, inward and outward, and in this connection elaborated a system of advances against specific deposits of specie which, of course, could be withdrawn on demand. Bearing in mind the importance of the trade in precious metal, we can see why, in addition to the immediate occasion of its decline (the Napoleonic Wars) there was a further underlying cause, the gradual shift of the centre of finance from Amsterdam to London: which is causally related to the control which London secured over the gold trade of eighteenth-century Brazil. Of this, more anon. Charges of recklessness in the Bank's management of its affairs at any stage of its history appear to lack foundation.

In 1694 the Bank of England was founded, and though before this time gold and silver coins circulated, there is no doubt that both in law and practice England was then on a silver standard. Gold was left to find its own level, like any commodity of commerce; and when this is allowed, such a metal is not the standard, for by definition the standard metal is that which is tied to the money of account. A silver crown piece of 5s. is 5s., and can never be anything else, and similarly with shilling pieces. Silver twenty-shilling pieces there never were: they would have been far too heavy. But gold was allowed to fluctuate in terms of the money of account, and the guinea-piece, first minted in 1663, soon passed for more than the intended rate of 20s. The mint indenture of 1670 ordered the pound weight of crown gold to be coined "into Forty-four Pounds Ten shillings by tale; to wit into pieces to run for Ten Shillings, Twenty Shillings" or multiple thereof. But the indenture underrated gold, which is the same thing as saying that it overrated silver, in relation to the value of gold and silver on the international bullion market. If we recall our version of Gresham's law (overrated money drives out underrated), silver should now have driven out gold, but it did not because the guinea-piece was not tied to sterling, the language of the indenture notwithstanding. It was allowed to find its true value. Therefore it stayed put, and the operation of Gresham's law was confined to the law in its simpler form: underweight (i.e. "bad") silver coin drove

out full-weight (i.e. "good") silver coin. This loss became so serious that it was necessary to embark on a great scheme of silver recoinage, 1696-99. In the course of it the guinea, which for a short time reached the speculative level of 30s., was given the following ratings:—22s. (April, 1696); 21s. 6d. (February, 1699). But there was no thought of making gold an alternative standard. Under date of 14th February, 1699, it was reported to the House of Commons:

It being impossible that more than one metal should be the true measure of Commerce; the world, by common Consent and Convenience, having settled that Measure in Silver; Gold, as well as other Metals, is to be looked upon as a Commodity, which varying its Price, as other commodities do, its Value will always be changeable.

However, it was not merely inconvenient, but a prejudice to commerce (it was reported further) that gold should be overrated; and yet the House wanted to go as far as it dared in leaving the gold to find its level. So, on February, 1699, the House cautiously resolved that no one was obliged to take guineas at 22s. apiece, and in this gingerly fashion the rating of 21s. 6d. was reached.

But the trouble was only beginning. For the guinea at 21s. 6d. was still overrated. The new full-weight silver of the recoinage left the country and gold continued to take its place. For 18 years this went on, till, in 1717, there was a second Resolution, based on a second Report, which pulled the guinea down to 21s. It was a landmark in the history of English currency. For the Proclamation which followed the Resolution fixed the guinea at 21s., neither more nor less; and henceforth it could not fluctuate in terms of sterling. Pursuant to this the Mint indenture of May, 1718, changed the rating of the guinea, in the terms of the indenture, from 20s. to 21s.

But even at 21s. the guinea was overrated on the valuation of the bullion market of the world. True, it was only overrated to the extent of about 4d.; yet this trifle of 4d. was sufficient to virtually standardise gold. For as a great monetary authority of the eighteenth century observed in a detailed argument: "The merchant will always make that

metal his standard, which is highest valued at the mint."¹ Adam Smith, in his lectures,² told his students how it worked. Read it for yourself. But remember that the action of the merchant was contingent on the trade in coin and bullion being free. As noted in a former chapter, the trade in bullion and *foreign* coin was entirely free under the Act of 1663. The export of domestic coin was not. But the prohibition on export was freely evaded by melting, smuggling and perjury.

Sir Isaac Newton, as Controller of the Royal Mint, was responsible for the Report of 1717. He was perfectly aware that the gold value of the guinea was 20s. 8d. Indeed, his Report is largely devoted to the establishment of the fact; and yet he did not recommend that the guinea should be reduced to 20s. 8d., or (to make silver quite safe) to 20s. 6d. Why was this? Why did he expose the country to the inconvenience of a continued drain of silver? Why did Parliament never rectify his trifling "error"? The answer is uncertain; but I suggest that the action of Newton and Parliament was deliberate. For certain good reasons they gave the benefit of the doubt to gold; and these in chief were:

(1) Silver, having born the racket of depreciation, was in ill repute as a coin. But it was in growing demand throughout the eighteenth century for plate and for export to the East.

(2) The country's trade was becoming large enough to make gold a convenient medium.

(3) The supply of gold was increasing fast, consequent on the exploitation of the Brazilian goldfields. England was the ally of Portugal, whose great colony was Brazil; and Portugal being in decline, England got the lion's share of the gold trade. Part of the new gold was coined in London, part in Lisbon and London. In each case the bulk of it came in British ships and found its way to London. The new traffic helped to make London the monetary centre of western Europe in the room of

¹ Joseph Harris, *Essay upon Money and Coin*, Pt. II (1757-8). McCulloch's Reprint of *Select Tracts on Money*, pp. 472-4.

² *Lectures on Justice, Police, Revenue and Arms*, p. 190.

Amsterdam. It strengthened and was strengthened by, the rising prestige of the sterling bill of exchange drawn for payment in London.

1717, then, was the year in which England in fact came on to a gold standard. This fact was implicitly recognised in 1774, when the gold coinage of the country (still of guinea and half-guinea pieces only) was recoined at the expense of the Government, and it was formally recognised in 1816, when gold was declared "the sole standard measure of value." But no one paid much attention to the Act. For England at that time was off a metallic standard of any sort. To Napoleon's England the decisive step was the return to cash payments, determined upon in 1819 and fully accomplished by 1821. The average business man thought of it, no doubt, as a *return* to gold, since silver had been for so long discredited.

In the same year, 1821, gold sovereigns, passing for 20s., were for the first time issued from the Royal Mint; and guineas survived only as a term of account, in favour with doctors, lawyers and university lecturers (correcting papers at 10s. 6d. a head), who thereby get an extra shilling in the pound.

Such was the Battle of the Standard; and I have said not a word about a famous controversy which was bound up with it, the affair of *Locke v. Lowndes* in 1695. Lowndes wanted to devalue the silver currency: Locke stopped him. Similarly in 1821 certain interests opposed the return to cash payments: Huskisson came down like a ton of bricks upon them. In both cases the cause of sound money prevailed, but in neither was the issue that of silver versus gold. In 1695 the standard was sterling silver: in 1821 it was crown gold. England never was and never tried to be a bimetallic country in the true sense of a country with a double standard, maintained by the deliberate policy of government.

CHAPTER VII

THE SEARCH FOR SILVER AND GOLD

There's gold, and it's haunting and haunting
It's luring me on as of old;
Yet it isn't the gold that I'm wanting,
So much as just finding the gold.
It's the great big broad land way up yonder,
It's the forests where silence has lease;
It's the beauty that thrills me with wonder,
It's the stillness that fills me with peace.

There are no mines of gold or silver in England, though Professor Foxwell once told me of a wildcat promoted by a Welsh rascal, who sprinkled a stream with gold dust. Perhaps for that reason he became a bi-metallist. Yet no kind of mining has exerted a profounder influence on Great and Greater Britain than the mining of precious metals and in chief of gold, in the dual rôle of a stimulus to emigration and a field for the investment of capital.

Shortly after the overthrow of the Spanish power in Mexico (c. 1810) English capitalists made a premature effort to revive its derelict silver mines. The loyalists had hurried with their stock of metal to Spain, and searchers ("buscones") had done their gleaning well. The field, therefore, was vacant for new enterprise; and the time was propitious. For the resumption of cash payments (1821) brought deflation, and English investors, having recently submitted to a reduction of interest through a government conversion, were on the look-out for a more profitable outlet at home or abroad. Anglo-American mining enterprises took their fancy.

"The mines of Mexico was a phrase which suggested to every imagination unbounded wealth; and these companies—the Real del Monte Association, the United Mexican, and the Anglo-Mexican,—were formed for the purpose of extracting wealth from their bowels by English capital, machinery, and skill. Similar companies were formed, in the course of the year, for working the mines of Chili, of Brazil, of Peru, and of the provinces of the Rio de la Plata, and for prosecuting the pearl fishery on the coast of Columbia,"—says Tooke. *History of Prices II*, 15th quoting from the Annual Register for 1824.

Nearly all of them failed. The extent of the damage done since the revolt had been underestimated; and the failures were a factor in the commercial crisis of 1825 in England. It was an outflow of capital and engineering skill, similar to that at the end of the nineteenth century under the direction of Weetman Pearson (Lord Cowdray) and others. Richard Trevithick, the engineer, was in it from the beginning, and it was a strange, disastrous, and yet heroic episode in his adventurous career. The bacillus of "Wanderlust," Professor Inglis suggests in his Trevithick Memorial Lecture, was imported from the West Indies, where a considerable demand for his engines had arisen in connection with the sugar industry. When, therefore, a gentleman of Swiss origin waited on him in Falmouth in May, 1813, with an order for steam-engines, pumps and other mining materials for the gold and silver mines of Mexico and Peru, he accepted it eagerly; and when he got news from South America that difficulties were being encountered in the installation and working, he decided to go out himself, and in October, 1816, left Penzance on a voyage from which he did not return for 11 years. After surmounting many hitches and crushing the intrigues of certain former friends, he seemed to be on the point of making a fortune, but here in Peru, as so often before in England, the prize eluded his grasp. He was embroiled in the Civil War still raging there, and the patriots in a moment of victory made the mines useless by smashing all the machinery they could find. Trevithick then went to Chile and opened up copper mines, which were still being worked in 1872, when his son published his life. However, he put his copper profits into a pearl fishing venture, which foundered. We find him next in Ecuador and after that in Costa Rica, where he prospected four years with a Scottish friend. The prospects were so good that they decided to return to England and interest the capitalists; and in order to avoid the long passage around Cape Horn, they took the overland route. After a series of hair-breadth escapes in the passes and ravines of the Cordillera, the tropical forest and lowland swamp, they made Greytown (S. Nicaragua) on the Caribbean Sea. It was a three weeks' march "through woods, swamps and over rapids; their food monkeys and

wild fruit; their clothes at the end of the journey shreds and scraps, the larger portion having been torn off in the under-wood."¹ At Cartagena (Columbia) across the Caribbean, Trevethick, the inventor of the "puffer" fell in by chance with Robert Stephenson, the son of its improver. "Is that Bobby? I've nursed him many a time," cried Captain Dick. Bobby lent him fifty pounds to take him back to Cornwall, which he reached October, 1827, the owner of the clothes he stood up in, a gold watch, a drawing compass, a magnetic compass and a pair of silver spurs. And yet orthodox history would have us believe that "capital" and "capitalists" open up new countries.

The second great gold boom of history (the first being in eighteenth-century Brazil) was in California.

The miner, forty-niner
And his daughter Clementine.

This, however, was America's epic and, incidentally, the training ground of Henry George. California handed on the baton to British Columbia, and from another hand to Australia and New Zealand. As in California, so in B.C., Australia and New Zealand the mining rushes were movements of men carrying their own equipment from field to field. The Australian fields were at their peak 1857–60, when Victoria yielded £110 million out of the £125 derived from alluvial mining. In 1861 Gabriel's Gully was discovered in the Otago Province of South Island, and for eight years New Zealand was in boom. Her deposits, however, were less enduring than those of Australia, which passed through the Californian sequence: from single claim working to "paddocking" and from "paddocking" to deep mining in lodes and then in reefs. The establishment of the Sydney Mint in 1855 forced the dealers to pay a proper price for the metal. The young Stanley Jevons was the assayer, and to this exhilarating experience we owe some of the freshness which distinguishes his monetary writings.

Gold did three things for Australia and *mutatis mutandis* for New Zealand:

¹ H. W. Dickinson and A. Titley, *Richard Trevithick* (quoting from the Life, by his son), p. 203.

- (1) It supplied a strong strain of vigorous manhood, which counterbalanced the ex-convict stock and the recipients of assisted passages sent out through charitable agencies.
- (2) It supplied a good market for local agriculture.
- (3) It set in motion a flow of general emigration.

This flow persisted after the fields had passed their peak, increasing even as they declined; and though this caused distress to individuals and localities, it brought out the type needed for the development of a new country. Moreover, the great shipping drawn into the trade (the White Star Line of Atlantic fame began as a line of emigrant sailing clippers to Australia) did the wool industry a good turn. Wool freights fell heavily to as low as ½d. a lb. for back-freight.

After a world pause, which was reflected in the falling price level of the 1870's, there was another and greater outburst of imperial gold-mining, which to-day is far from spent. In the 1880's the Rand was uncovered, in the 1890's the Yukon: 1900 onwards, Northern Ontario, Rhodesia and finally new mines in the Gold Coast of West Africa, the birthplace of the guinea. Each of these developments had its distinctive feature: the frost-bound romance of the Yukon under the superb discipline of the Canadian Mounted Police, the rolling back of the north in Northern Ontario, and above all in economic significance, the vast enterprise of the Rand, with political, social and financial consequences of much importance to the world and of every importance to the Union of South Africa. One aspect, and that which concerns England most closely, it must suffice to note here.

Professor S. H. Frankel, in his volume for the Hailey Survey,¹ puts the private (i.e. non-governmental) listed capital of gold mining companies in the Union at c. £150 million (1887-1932) as compared with £20 million in diamonds (1870-1936). The total listed capital (1870 to date) he estimates at £550 millions, most of the balance being public securities. The greater part of the £550 million came from London. The Union Government is directly interested in gold mines, as a source of special taxation and as a participant in mining leases. The author stresses the great

¹ S. H. Frankel, *Capital Investment in Africa* (1938), pp. 53, 89, 170.

dependence of South Africa on British capital, which he attributes not only to the wealth of Great Britain but to the efficacy of her financial machinery. And what is true of the Union is true of British Africa generally. In every country the key question is, Has it got a starter in the form of un-gotten minerals? If so, capital will flow in to work mines and build railways, and finally to improve the local agriculture.

To South Africa the social problem of coloured labour and its relation to skilled European labour and that of the poor whites overshadows every other. The lodgement of labour in compounds, it is said, was introduced by Rhodes in the diamond diggings, to avoid Illicit Diamond Buying, and because of its convenience, extended to gold. Great changes for the better have taken place in the conditions of work, especially in the department of sanitation. But the wage position is less good. "Nothing has changed so little in Africa as the black man's rate of pay." The earnings of European labour, to be sure, are disproportionately high, but it is at least possible that the difference is not more than enough to maintain European morale, and it is by no means certain that a reduction of the white man's rate of pay would benefit either him or the coloured man. See for an analysis of this burning issue Lord Hailey's *African Survey* (1938), Ch. 20, from which I take the following (pp. 1369-70):

The white community was prepared to say, as other communities have said with regard to unemployed persons, that there was a minimum standard below which it was not willing to see unskilled fellow-whites fall. It might have said that if work were not forthcoming at that wage, it would grant unemployment benefit. It has preferred to say that certain types of work should be reserved to white unskilled workers. Granted the assumption that white labour should not be permitted to descend to the level of income dictated by its efficiency compared with that of native labour, it is difficult to argue that such a policy is obviously "uneconomic." It involves the community, it is true, in expenditure greater than if it employed native labour and allowed its white unemployed to starve. It is by no means clear that it involves the community in greater expenditure than if it made the minimum practical provision for its white unemployed.

This language is in pleasing contrast to the petulant purism of outmoded orthodoxy.

CHAPTER VIII

STAGES IN ECONOMIC HISTORY

This is the title of a paper by Mr. N. S. B. Gras at the meeting of the American Economic Association, Washington, D.C., December, 1929, introducing a fruitful discussion, in which I had the privilege to share.¹ It was read at a time when for one student prepared to listen to history, full fifty were crowding to hear Irving Fisher and other explain (away) the stock market collapse of that autumn.

The interesting point about the idea is that it grows upon you as you try it out: the disappointing point is that it is so hard to use as a tool of thought, whatever be the kind of stage with which you elect to work. I find myself thrown back on periods of convenience rather than on stages which match logically; and perhaps this is because the kind of stage which illuminates one period of history becomes inadequate in the next and ends by being merely tiresome.

A stage, says Professor Gras, is "a new condition competing with an old one," of which perhaps the oldest series is Hesiod's gold, silver, bronze, heroic and iron ages. But we shall go no further back than Adam Smith, who uses as his sequence hunting, pastoral, agricultural, commercial, manufacturing. Any such sequence becomes stilted, unless it is recognised that there are hangovers from earlier periods, and that anything later than the stage of settled agriculture and even that stage itself is necessarily composite: agriculture-cum-trade: agriculture-cum-trade-cum-industry. Moreover, the sequence of occupation is tending always to be overlaid by the broad and simple sequence from barbarism to civilisation, with food for thought in *civis*, a citizen.

German historians have tilled the field more assiduously and they seem to consider that from an improved sequence they will arrive at a theory of economic society. They and their following in England and America have, therefore, so to speak "run" particular sequences, and would have us admit

¹ Published in *Journal of Economics and Business History*, II, 3, May, 1930.

the superiority of theirs over those which have held the field hitherto. Examples are:

Hildebrand (1864) Exchange Relation	Bücher (1893) Industrial Organisation
Gift Barter	House Work
Barter	Wage Work
Money Economy	Handicraft
Credit Economy	Commission Work ("putting out")
	Factory System
Gras Range of Market	A Suggested Fourth Unit of Enterprise
Village	Manor
Town	Gild
Nation?	Individual Entrepreneur
World? { Preferably Economic Metropolis	Joint Stock Company Combine or Co-operative Society

The sequence which Ashley and Unwin found useful is (and perhaps for that reason) a logical medley: household system, gild system, domestic system, factory system. Professor Gras considers that these two writers confuse organisation with association. I think they do, but I see no objection to it because it enables them to use language which is closer to reality; though I suggest that household system were better called manorial system. Especially is domestic system a good term, because it is one which those who were in it and of it coined to separate themselves from the new system in which by degrees they were engulfed. Gild again is very good, because a gild was from one aspect a form of association and from another a form of organisation: they were reverse sides of the same medal. The real difficulty is household. For this tells only half the story. As Mr. Raymond Firth says of primitive Polynesia, "Primitive economy and household economy are species of a single genus—the small unit economy not oriented to an external market."¹

The weakest of the sequences seems to me to be Bücher's. For there is no genuine stage of wage work between house-work (i.e. production for one's own use) and handicraft. The

¹ R. Firth, *Primitive Polynesian Economy* (1938), p. 351.

wage relation occurs throughout, and becomes increasingly common until in the factory system it is general. Moreover, and this applies equally to the suggested fourth above, it is limited to manufacturing enterprise, to the partial or complete exclusion of transport and agriculture. I would, however, agree that the point at which the single producer begins to produce for stock is a crucial step in the evolution of modern capitalism.

Mr. Gras' scheme is free from narrowness; and this, indeed, is its merit. Village, town, metropolis, in the adjectival form of village, town and metropolitan economy, yield something which is truly general. Especially fertile is the conception of metropolitan economy. It builds easily on to Adam Smith's economy of towns and cities, and it keeps us from the pitfall of pursuing the town into the nation and the nation into the world: which latter consideration is most important to a right framing of English economic history. For we in England jumped from a town economy to an overseas economy of empire, spent two centuries in filling in the national market and eventually lost a part of the imperial circumference. As for world economy, it was a Utopia to Adam Smith, a fond hope to Cobden and the men of 1860, and a failure for which the nations of the world are only half ashamed to-day.

At first sight the twin conception of range of market and division of labour is an unanswerable argument for free trade. And in truth it is, if we confine ourselves to the specialisation which it promotes in manufacturing industry. But the historical complement of this was *not* the specialisation of agriculture in countries overseas; and Alexander Hamilton put his finger unerringly on this hole in the armoury of free trade. Mill, in allowing protection to infant industry, surrendered the citadel in advance. Adam Smith was too shrewd to allow an exception of this sort. But it is not easy to see what reply he could have made to the following from the Report on Manufactures communicated by Hamilton to the House of Representatives on 5th December, 1791—a classic if ever there was one:

If it cannot be denied, that the interests, even of agriculture, may be advanced more by having such of the lands of a State

as are occupied, under good cultivation, than by having a greater quantity occupied under a much inferior cultivation; and if manufactories, for the reasons assigned, must be admitted to have a tendency to promote a more steady and vigorous cultivation of the lands occupied than would happen without them, it will follow that they are capable of indemnifying a country for a diminution of the progress of new settlements, and may serve to increase both the capital value and the income of its lands, even though they should abridge the number of acres under tillage.¹

This and the paragraphs on either side of it contain as their core the following:—Adam Smith's system of perfect liberty presupposes a specialised overseas agriculture exchanging its products with the specialised manufactures of Great Britain. But overseas agriculture is pioneer agriculture, and the settler is compelled to be a jack-of-all-trades. The introduction of manufactures, therefore, would bring about not a decrease, but an increase in the specialisation of labour, since industry, or agriculture in adjacence to industry, is the only environment in which it can grow.

Thus Hamilton dealt with Smith as Smith with Mun. He went with him nearly the whole way and virtually convicted him out of his mouth. Adam Smith had said of colonial agriculture those very things which Hamilton admitted, but stopped short of asking how they could be cured. Hamilton asked for protection, not to confer privilege on industry, or to swell its profits, but to bring the natural occupation of a free country, namely, agriculture, into the stream of cultural advance—which was precisely Adam Smith's point against Mun.

However, it is no real advantage that a sequence of economic stages should take us so easily into fiscal logomachy. For a working tool we need something at once neutral and broad, and I think that Hildebrand was on the right plane, even though his category requires correction and addition. A pioneer in a mode of thought cannot get the whole thing right once and for all, and it is no demerit that he has suffered amendment.

For us in England the necessary corrections follow easily from a consideration of the work done by Mr. Postan on

¹ A. Hamilton, *Papers on Public Credit, etc.* (ed. 1934), p. 202.

Credit in Medieval Trade¹ and by Mr. Judges on *Money, Finance and Banking from the Renaissance to the Eighteenth Century*.²

Prof. Postan's finding (as it almost had to be in the absence of that high achievement of nineteenth-century England—the capacity for cash payment) is that credit formed the financial basis of medieval trade. And he illustrates it with a wealth of detail. Of purchase credit he writes, "The accounts of Flemish merchants teem with entries of sums owing to them on account of advances made to monasteries and others for wool of future growth. [I think of the sale of Canadian apples on the tree by needy growers to perambulating merchants.] But it was the great Italian houses of the thirteenth and fourteenth centuries, the Ricardi, Peruzzi, Bardi and others, who made it a common practice." Of sale credit (i.e. credit in the form of goods delivered before payment) he says, "Wholesale trade was common throughout the Middle Ages. Goods were often handled in bulk and sold, not to the final consumer, but to other merchants, and often changed hands several times before being retailed." This wholesaling involved credit. Thus English wine was bought on credit by importers from the merchants and growers of Saxony and Poitiers and retailed or wholesaled on credit in England—the credit coming from wealthy English vintners. Similarly, clothiers delivered cloth to drapers, for export or home consumption, on a credit of several months.

Obviously all this links genetically with Mr. Hawtrey's *Century of Bank Rate*, Ch. I. But no less obviously we are taking Hildebrand into deep waters. The Germans gave us the words (and therefore the clearest form of the idea behind them):

Naturwirtschaft
Geldwirtschaft

Wirtschaft is one of those fundamental notions that just will not translate; and the nearest we can get in the compounds is "natural economy" and "money economy."

¹ *Economic History Review*, I, 2.

² *European Civilisation, its Origin and Development* (Ed. E. Eyre), Vol. V, pp. 401-99.

But having written money economy we want to go back and re-write the former "payment in kind." For this is what we are really thinking about in pre-monetary economy—not the presence or absence of credit in trade, but the discharge of services in labour and the remuneration of services in whole or part in kind. Labour services can become overdues as easily as rent or interest: and perquisites in kind may be withheld. Cash down once a week or daily for service rendered is the product of high industrial maturity. But we can, I think, with great advantage, think of Elizabeth's England and Akbar's India as metal economies and of Bagehot's England and James Wilson's India as banking economies. For by this time England had put metal in its proper place, and India, under English guidance, was taking the first steps thereto.

As I understand it (though I am not familiar with the detail of his writings—see D.P.E.: Hildebrand, Bruno 1812-1878), Hildebrand associated natural economy with barter and did not talk about barter with any greater prudence than Adam Smith or Marshall himself. Only Sir James Steuart among the classical economists (so far as I know) takes care to tell us what historical barter is: the barter trade of the Hudson's Bay Company, for example. It is a method by which civilised traders swindle the natives out of ivory, furs and precious stones. It is barter in which one party thinks in terms of money and the other in terms of custom or caprice. The Hudson Bay musket was tall, because that was the unit of swindling. The taller the musket, the greater the number of beaver skins that went to a musket's worth.

But European enterprise overran the East as well as the West; and this takes us to the anthropology of the Pacific. It will be our fault, and not Mr. Raymond Firth's, if henceforth we talk nonsense about primitive economy.

The economy of Tikopia [the Polynesian island he is examining] is complementary along its own lines, rich in personal relationships and in concepts of exchange of goods and services, but arranging these to fit a scheme of wants dictated by a variety of cultural values.¹

Truth and honesty do exist among primitive peoples without any written or even verbal contract, not necessarily of moral

¹ R. Firth, *Primitive Polynesian Economy*, p. 354.

virtue, but because the social norms demand them and continued attempts at evasion would lead to a severance of vital social and economic relations.¹

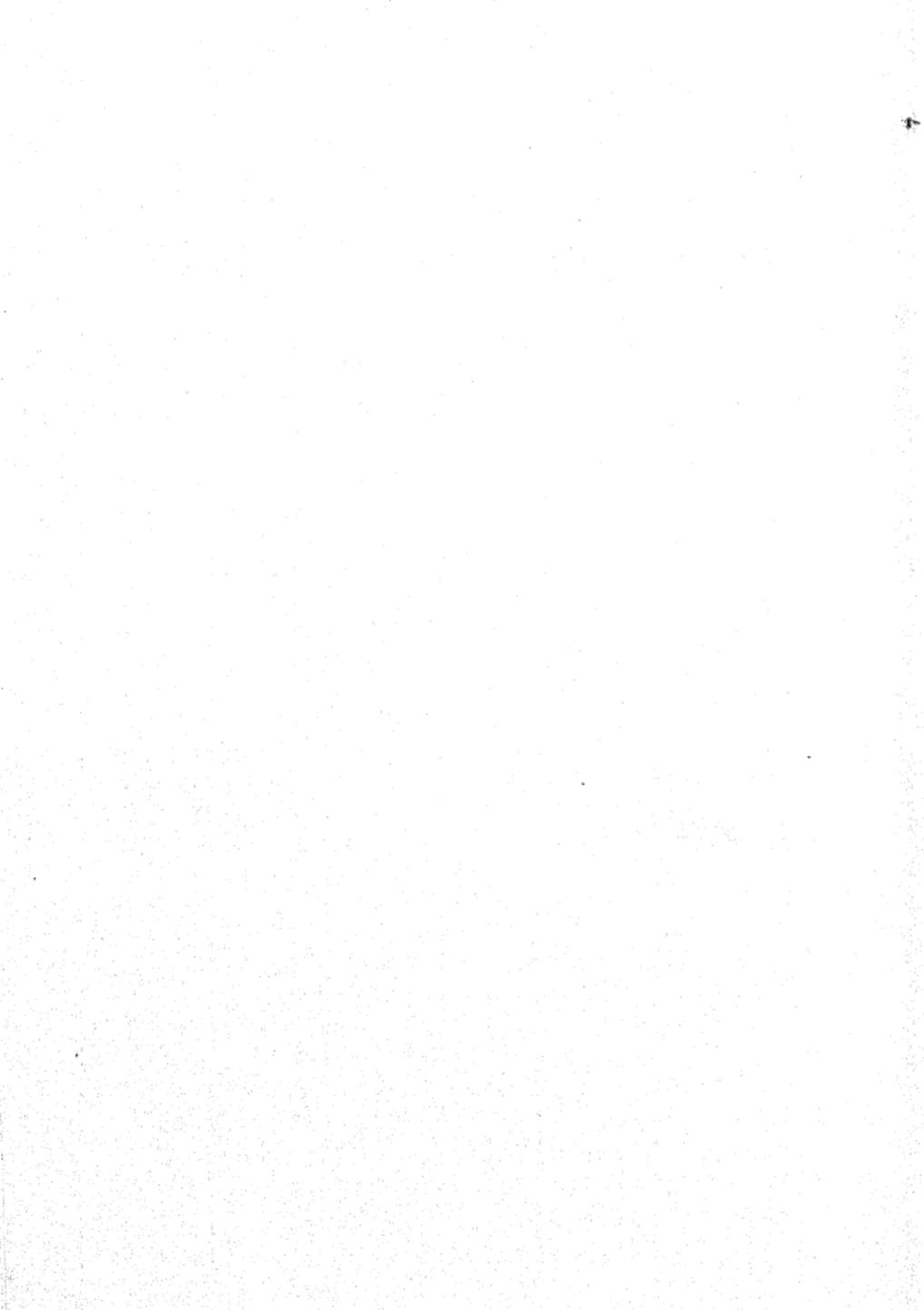
Thus, in such a society, what looks like barter is, or may be, traditional payment, in which the object exchanged has a ritual value. In *Tikopia* when a loan is returned, the *lender* makes a complimentary payment. "Gift-barter" has been used of such transactions, but it is a clumsy modernism; for it is neither a gift nor barter, as we understand these terms. It is a pity that we do not call the barter trade of history by the legal name of "barratry," for this at any rate would remind us that it falls within the realm of *force majeure*.

The final test I would apply to a scheme of stages is, does it keep us on the broad highway of economic history? Retail-wholesale, town-metropolis, domestic system-factory system I think do not. They take us along narrow lanes, separating us like the strings in a hundred yards foot race. For I go the whole way with Professor Heckscher in saying that "monetary problems are the most important field of all for a use of economic theory in the service of history";² and I would add that this fact makes them the prolegomena to pure economic history. Therefore, if I am not to do my stages in the company of an amended Hildebrand, I would sooner abandon the pedestrian way altogether and try my luck with Karl Marx in his Hegelian stratosphere:—thesis, antithesis, synthesis: feudalism, capitalism, socialism.

Lenin died and tapped at the Golden Gate, but was shy of entering in. St. Peter re-assured him and said "O.K., get into this sack, and I'll take you along to Marx. He'll look after you." They arrived at Marx's lodging, and when Marx poked his touselled red head out of the window and cried: "What's that?" St. Peter, pitching the sack into the alleyway, answered, "Here's the Interest on your blasted Capital." Lenin is Marx's stage four, with Hitler and Mussolini a present fifth.

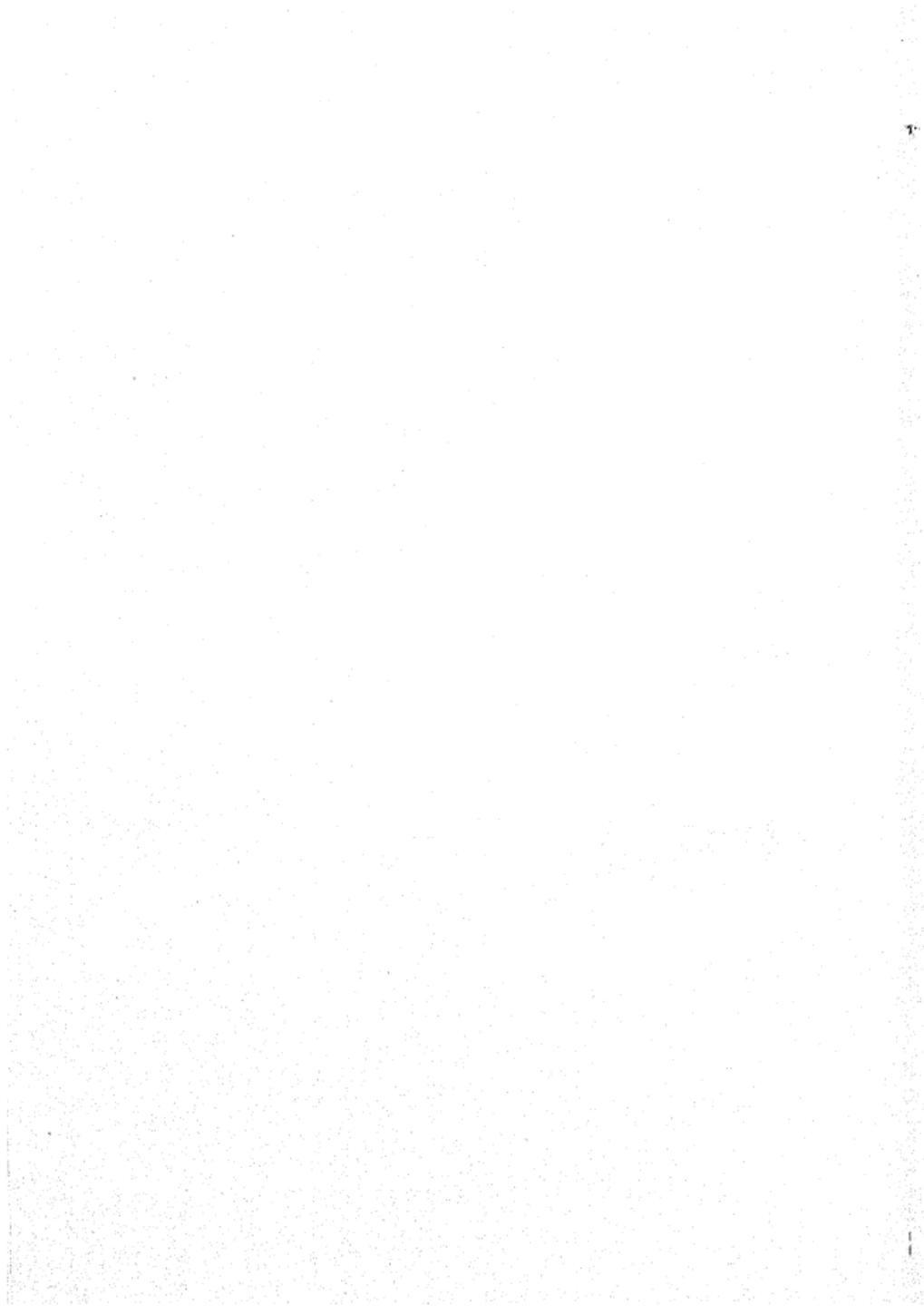
¹ R. Firth, *Primitive Polynesian Economy*, p. 349.

² *Economic Journal (History Supplement, 1929)*, p. 533.



Part II

FISCAL POLICY AND
AGRICULTURE



CHAPTER IX

REFORM AND REPEAL

"The Great Reforms which followed the publication of the *Wealth of Nations* may be summed up in the word Repeal."

The quotation is from Winwood Reade's *Martyrdom of Man* of which Sherlock Holmes said to Watson, "Let me recommend this book, one of the most remarkable ever planned. I shall be back in an hour."—*The Sign of Four*; and it is one of those few quotations which are comprehensively true. Let us begin, therefore, by constructing a Repeal Table, arranged by subjects.

1. Abolition of the Slave Trade and Slavery—1807: 1833.
2. Removal of restrictions on freedom of movement in the Settlement of the Poor—1793: 1795.
3. Repeal of the Elizabethan Statute of Artificers—1813 wages clause: 1814 apprenticeship clause.
4. Repeal of the Assize of Bread, etc.—1815 London, 1819 provinces: 1822 full freedom to London bread and milling trade, 1836 to provincial ditto.
5. Removal of restrictions on the export of gold—1816: in effective operation after resumption of cash payments 1821 (under Act of 1819).
6. Abolition of East India Company's monopoly—China Trade excepted 1813: in China Trade also 1833.
7. Abolition of dock companies' monopolies: West India, 1823: East India and London, shortly after.
8. Abolition of joint-stock banking monopoly of the Bank of England—1826 outside London area: 1833 within London area.
9. Abolition of export restrictions (and bounties) on 1814 Corn.
1824 Emigration of artisans.
1824 Wool.
1843 Machinery.
10. Tariff revision downward, from prohibition or prohibitive duties to full free trade.

Item 10 sub-divides as follows:—

- (a) London Petition for Free Trade 1820.
- (b) Silk import tariff, revised from prohibition to moderate duty, 1824.
Repeal of Spitalfields Silk Acts 1824.
- (c) Navigation Laws: modified 1822, '25: repealed 1849.
- (d) Corn Laws: modified 1828, '42: repealed 1846.
- (e) General Tariff Reductions:—
Huskisson and Robinson (Viscount Goderich) 1823-27.
(Codification by J. Deacon Hume 1825).
Peel, 1st 1842.
Peel, 2nd 1845
Gladstone, 1st 1853.
Gladstone, 2nd 1860.
- (f) Commercial Treaty with France, 1860.

The table illustrates the catholicity of the reform movement, which embraced social as well as trade relations: local regulations as well as central: exports as well as imports: free gold as well as free goods. The London Merchants' Free Trade Petition of 1820 is now seen in its true setting. It was a doctrinaire *tour de force*, coming about midway in the general stream of repeal; and though it may be said to have launched the movement for a downward revision of the protective tariff, it was far from being the beginning of a new era even in the field of trade. This was launched on the circumference of Empire, in the west upon the independence of the American Colonies, in the east upon the opening of the Indian trade to the generality of English merchants. Of single episodes, the most significant, perhaps, is the late date at which the free export of machinery was permitted—1843. Huskisson tried to free it in 1825, but the manufacturers of Lancashire, so keen on securing an entry into the Eastern trade and reductions of duties on materials or goods which they did not produce, evinced the liveliest alarm, and Huskisson had to give away. Indeed only when experience showed that prohibiting the export of the whole article encouraged the illicit export of tools and machine parts, was the ban on exports removed. It is a pity that the

London Merchants have nothing to say on this aspect of free trade.

The freedom to trade in slaves was the greatest crime of English political history, beside which the wrongs done to Irish peasants were drops in a bucket. The second greatest crime, perhaps, was the press gang, which, again, did not affect the Irish, who, incidentally, paid no income tax till 1853, when Gladstone, their would-be liberator of a later decade, harnessed them to it.

Of the slave trade, and the movement for abolition, Winwood Reade writes trenchantly: "In the eighteenth century a trifling trade was done in ivory and gold, but these were only accessories; the Guinea Trade signified the trade in slaves. At first the Europeans kidnapped the negroes. . . . But it was cheaper to buy men than to steal them."¹ He goes on to a vivid picture of the horrors of "the Middle Passage," when the black ivory was packed like herrings, crate upon crate, kept alive by forcible feeding and dumped overboard when it ceased to breathe.

Cambridge has a high place in the abolition movement. For though Granville Sharp (1735-1813) was not a Cambridge man, he came of Cambridge stock. His father was a fellow of Trinity, his grandfather a Christ's man and Archbishop of York (the Archbishop published sermons and left in manuscript a treatise on coinage: so that he was half way to being an economist). Granville Sharp engaged in various actions of law which resulted (1775) in the formulation of the principle "that as soon as any slave sets foot upon English territory he becomes free." This principle was built up on the famous decision in the negro Somersett's case (1771—20 State Trials, 1), "Therefore the black must be discharged." Thus England said good-bye to Johnson's England. The lexicographer died in 1784. In 1787 Sierra Leone was selected as the site for a colony of emancipated negro slaves, and the Sierra Leone Company was formed to administer the colony. But I cannot remember that Johnson ever advised his negro servant, Francis, to return to the ancestral Continent.

¹ W. W. Reade, *The Martyrdom of Man*, p. 277.

In 1784 Vice-Chancellor Peckard of Magdalene, announced as the subject for the Latin Essay, "Anne liceat invitatos in servitutem dare?" Thomas Clarkson of St. John's won it. Going back to London, after reading his Essay in the Senate House, he halted at Wade's Mill (Herts.) and brooded upon what he had just declaimed. "If the contents of the Essay are true, it is time that some person should see these calamities to their end." He interested a fellow-Johnian, William Wilberforce, who interested Pitt of Pembroke, his bosom friend. Said Wilberforce's godfather, "If Billy turns Methodist, he shall not have a sixpence of mine," but Billy was not to be stopped. With the powerful help of Wilberforce, Clarkson appealed to the conscience of Europe, as well as of England. The concessionaire interest defeated him in France, but after the French Revolution the abolitionists there fought back. In 1807, in the midst of war, England abolished the trade, and in 1814 at the Congress of Vienna it was a prime demand of the victorious power that France and her allies should follow suit. It now remained to abolish the institution itself. In 1823 the Anti-Slavery Society, headed by the Quaker, T. F. Buxton, organised the necessary campaign; and in 1833, slavery was abolished in the British Empire, compensation being paid to the owners, of whom the West India sugar planters were the chief.

The abolition of slavery was one of the reasons which in South Africa prompted the Great Trek of 1835. "Emancipation was resented as one aspect of the revolution that had been sweeping through the colony since 1828."¹ The frontier Boers of 1829 had no use for strong government allied with philanthropy; and the outlook of their successors has remained fundamentally the same. The pro-Boers of 1899 could not with consistence maintain that they were also pro-native.

The ground plan of liberty in the *Wealth of Nations* is set by the standard denunciations of it, "evident violation of natural liberty and justice," etc. Let us list two pairs and their issue.

¹ Cambridge History of the British Empire, Vol. VIII (South Africa), p. 321.

(a) THE TWO ON BEHALF OF THE WORKING POOR.

(I. 128). "The patrimony of a poor man lies in the strength and dexterity of his hands, and to hinder him from employing this strength and dexterity in what manner he thinks proper without injury to his neighbour, is a plain violation of this most sacred property."

(I. 142). "To remove a man who has committed no misdemeanour from the parish where he chuses to reside, is an evident violation of natural liberty and justice."

(b) THE TWO ON BEHALF OF THE ENTREPRENEUR.

(I. 307). "To restrain private people, it may be said, from receiving in payment the promissory notes of a banker, for any sum whether great or small, when they themselves are willing to receive them; or, to restrain a banker from issuing such notes, when all his neighbours are willing to accept them, is a manifest violation of that natural liberty which it is the proper business of law, not to infringe, but to support. Such regulations may, no doubt, be considered as in some respect a violation of natural liberty. But these exertions of the natural liberty of a few individuals, which might endanger the security of the whole society, are, and ought to be, restrained by the laws of all governments, of the most free, as well as of the most despotical. . . ."

(II. 32). "The law which prohibited the manufacturer from exercising the trade of a shopkeeper, endeavoured to force this division in the employment of stock to go on faster than it might otherwise have done. The law which obliged the farmer to exercise the trade of a corn merchant, endeavoured to hinder it from going on so fast. Both laws were an evident violation of natural liberty and therefore unjust; and they were both, too, as impolitic as they were unjust."

In these passages, as in so many others, one is struck by the measured fairness of his thought; and history went along with him, as he tried to go along with it. The Friendly Societies Act of 1793 protected members of such societies from removal before they became actually a charge: the Settlement and Removal Act of 1795 extended this to all persons. Statutory apprenticeship in the trades and areas

concerned by the Act of 1563 was abolished in 1814 by 54 Geo. III., c. 96, the wages clause having gone the year before.

But one little question which I cannot answer is this: What in 1776 were the trades which, being posterior to 1563, were not subject to the Statute of 1563? What proportion did these trades bear to trades under regulation, say, in 1700, 1776, 1814? I just do not know.

In 1826 the bankers got their emancipation. Co-partnerships of bankers were legalised outside the London radius, and apparently, by legal interpretation, within this radius also, though further legislation in 1833 was considered necessary to set it beyond doubt. Meanwhile, with the return of peace, the old restrictions on the food trade had passed or were passing, away by stages. In banking the provinces got their liberty first: in the food trades the millers and bakers of the metropolis. But a second Act of 1826 restricted banking liberty in the general interest. The small note issue, i.e. under £5, was suppressed, except in Scotland, when it was saved by Malachi Malagrowther (Sir Walter Scott). And if you of Scotland arrive in Cambridge with a one pound bank note, you ought to find out with which of the big five your bank is affiliated, e.g. the British Linen Bank with Barclays, and demand that they give you pound for pound, instead of 19s. 6d.

Parliament, having granted a twenty-year monopoly to the West Indian Dock Company (1803) refused to renew it in 1823, and similarly with the East India Dock Company. Further, it sanctioned a new company, the St. Katherine's, in order to stimulate competition. Thomas Tooke (1774-1858) was a director of this Company; and this was another item in his liberal record. He had drafted the London petition of 1820: he was a Baltic merchant, whose trade in grain had been freed from internal regulation: and he was now in competition with the old dock companies. It only remained for him to expose the Corn Law Sliding Scale of 1828 and to denounce the virtual monopoly assigned to the Bank of England note issue by the Bank Charter Act of 1844. Upon this last he was still engaged, "when already turned of four-score."

The removal of the restraints on exports proceeded more silently than the reductions of the import tariff. But they were reverse sides of the same medal; and on the export side freedom replaced both restriction and bounty-fed encouragement. The Corn Law of 1814 abolished the export bounty and made export free at all prices. Similarly with wool. In 1824 Huskisson substituted an export duty of 1d. a lb. (abolished 1833) for the age-old smuggler-thwarted prohibition on its export. Equally futile had been the prohibition on the emigration of artisans. The chief result was that artisans who had emigrated could not legally come back when they wanted to or were wanted. This further restraint on "export," therefore, went in 1824. The only restrictions of any significance subsequent to 1824 were the prohibition on the export of machinery, repealed as aforesaid 1843, and the coal export duty, imposed for revenue by Peel in 1842 and repealed in 1845. But the Anti-Corn Law-Leaguers considered the Corn Laws an indirect restraint on export, and fought on this platform as well as on the more philanthropic one of untaxed bread for the hungry poor in the campaign which they won, or rather rotten potatoes won for them, in 1846. The death-knell of landlordism thus was sounded.

The detail of the tariff reductions and of the modifications of the Corn Laws and Navigation Laws, down to their disappearance in 1846 and 1849 respectively, is standard textbook material. The episode of Cobden's Treaty is, however, of special interest for two reasons:—

(1) It exhibited the free traders in their most doctrinaire mood; and I refer not to the free trade of Cobden, its author, but to that of those who mistrusted and declaimed against it, because in their view, to make any fiscal bargain was—well, almost as bad as to recognise prostitution by registering prostitutes.

(2) It is of interest to consider who prompted it, and whether France did better out of it than out of her incontestably poor bargain of 1786. On this you should read A. L. Dunham's *Anglo-French Commercial Treaty of 1860* (1930). Michel Chevalier, he submits, presented to Napoleon III the plan which eventuated in the Treaty.

But his part has been forgotten, perhaps because of the unpopularity of the Treaty in France, while Cobden earned praise even from the doctrinaires for the severe raps which he gave to the protectionists of France. Did France blunder a second time? Mr. Dunham gives a cautious "no." For the manufacturers made good use of the loan granted to them to sustain the expected competition from England, and the textile districts of France advanced notably after 1860 in technique and scale of operation. The Treaty lasted for 20 years and was then denounced by France, who was by this time heartily sick of her second flirtation with free trade.

CHAPTER X

DR. PRICE AND THE NATIONAL DEBT

RICHARD PRICE, D.D., F.R.S.

1723-1791.

Born at

TYNTON LLANGEINOR

Philosopher, Preacher, Actuary,
CFAIL DYNOLRYW*

It is of the man who is thus commemorated on a bronze plaque in Bridgend Public Library (Glamorgan) that I speak to-day. The ceremony of unveiling was reported in the *Western Mail* (Cardiff) of 22nd July, 1937.

If it is tedious to read Weber after Mr. Robertson, it is even worse trying to read Dr. Price after Robert Hamilton, Professor at the Marischal College, Aberdeen, and author of the *Enquiry Concerning . . . the National Debt* (1813). Our only enjoyment is guessing at the "Historical Revision" which someday will prove to its satisfaction, if not to ours, that Dr. Price was a much maligned man, who never said what he was supposed to say and, in fact, was far more right than Hamilton or Adam Smith, with whom in birth and length of life he coincided—Adam Smith, 1723-90, Richard Price, 1723-91.

But Price did one good thing. He provoked Edmund Burke to reflection on the French Revolution, and for this much may be forgiven him. But what he says on the National Debt is drivel from start to finish. He wrote about it with the persistency of Sir John Sinclair, who was infected by the same bacillus. His works, which his nephew, the actuary, W. Morgan, edited with a memoir, run to ten volumes; and his economic contributions include *Observations on Reversionary Payments*, 1769; *Appeal to the Public on the Subject of the National Debt*, 1st and 2nd editions, 1772; *The State of the Public Debt and Finances*, 1783. The Appeal says:

* = Friend of Humanity. Llangeinor is 8 miles N. of Bridgend.

ONE PENNY, put out at our Saviour's birth to 5 *per cent.* compound interest, would, before this time, have increased to a greater sum than would be contained in A HUNDRED AND FIFTY MILLIONS OF EARTHS all solid gold. But if put out to simple interest, it would, in the same period, have amounted to no more than seven shillings and fourpence half-penny.¹

And so why worry? Only launch a sinking fund and it will pay off the debt by its own momentum through the magic of compound interest. Wars will help rather than hinder. "War would accelerate the redemption of the public debts; and it would do this the more the longer it lasted and the higher it raised the rate of interest."² Conversions were a grand thing, but they must be from a lower to a higher interest: in order, presumably, to allow more elbow room to God in which his wonders to perform. It is by this time obvious that we are dealing with the Major Douglas of Napoleon's England. And as economists, we need spend no more time with him. But psychologically, he is as important as the Angels of Mons. For he comforted his country in its hour of need.

Nations abide "a great deal of ruin," as Adam Smith observed anent the blue ruin cried over Saratoga.³ But even the sobriety of Adam Smith was not proof against his and his generation's dread of National Debt; and Price's fond affection has this much justification that he was but going to the other extreme, though going to the point of insanity. In Adam Smith's view, public debt was a canker which, if not excised, would rot the body politic, for it spread continuously and at an increasing rate. He was, therefore, in favour of a sinking fund supported by increased taxation extending to the whole empire, since he had little hope of England doing it by herself. And the low view which he took of the Government's ability to repay what it borrowed, caused him to regard irredeemable funds as insult added to injury. If there are to be funds, let the fund be a sinking fund which repays. But there is no trace in his thought of any belief that such a fund was of any efficacy apart from increased taxation. However, once again there

¹ *Appeal*, p. 19.

² *Reversionary Payments*, p. 158.

³ Cf. *Memoirs of Sir John Sinclair*, I, 37.

is this much in Adam Smith to account for Dr. Price. Adam Smith and every liberal of his day objected to the income tax on the ground of its inquisition; and Dr. Price offered a sinking fund which required no taxation to sustain it. Add the obstinacy of a religiously-minded fanatic, and you can see why Dr. Price had so long a run. He appealed unerringly to the fundamental unreason of duty-shy mankind. He was of the select company which can persuade his generation that a mountain can be moved by a formula.

In a survey of the National Debt it is important to understand the precise meaning of certain terms.

Funded Debt is debt repayable only at the option of the Government. If the stock rises above par, then, in the absence of a provision precluding conversion before a certain date, the Government can offer holders the option of repayment at par or a new stock bearing a lower interest.

Floating (or unfunded) Debt is debt repayable within a short interval; and it is of two sorts (*a*) normal short-period borrowing, (*b*) emergency borrowing, especially in war time, pending a public issue of funded stock.

The Funds.—To the nineteenth century “the Funds” were another name for debt stock. But this was a derived meaning. The original meaning was the pool into which taxes earmarked for the payment of interest were paid. And sinking funds before Pitt’s time arose from the understanding that when such earmarkings exceeded the interest due, they were to be devoted to the discharge of the principal. But invariably, after a preliminary show of virtue, these surpluses were raided and applied to current purposes.

Consols.—These took their name from the grouping of certain loans into a joint-stock of 1752 under the name of “Consolidated 3 per cent. Annuities.” The amount was £9 million odd 5s. 1½d.; and the farthing was carried forward year by year until it was cancelled in 1855 by the pen of some unknown hero in the Civil Service. Most of the new issues of 1793–1815 were in 3 per cent.’s; and after 1815 conversions of stock bearing a higher interest into 3 per cent.’s added to the volume of Consols. Finally, in 1888, when Consols were at 103, Goschen offered to the holders a new stock bearing interest at 3 per cent. until 5th April,

1889, at $2\frac{3}{4}$ per cent. for the next 14 years and at $2\frac{1}{2}$ per cent. from 1903 on. The operation was highly successful, for out of £558 millions nearly 80 per cent. was converted. Goschen succeeded where Gladstone and his lieutenant Eardley Childers failed; and I remember Mr. Keynes saying at his society in 1931 that conversion must wait until Labour had handed over to the Tories. Philip Snowden would have resented the thought, but it was quite true. *The Financial Times* of 16th August, 1932, has as headlines:

War Loan Conversion Success
Holders of £1,850,000,000 Assent
All Estimates Exceeded
Big Saving in National Expenditure Assured

Thus, over-night War 5's were turned into $3\frac{1}{2}$'s and the only 5's one can buy to-day are Snowden's little feeler of 1929: Conversion Loan of 1944-64, now (December, 1939) around 108. 1944 means Government cannot repay before 1944: 1964 means Government must repay by 1964.

Annuities. The term was once more common than now. An annuity is a payment over a series of years. A *perpetual* annuity is an irredeemable funded stock. A *terminable* annuity is one which runs for a period of years and then ceases: therefore, the annual payment includes repayment of principal as well as payment of interest. By such annuities about $1\frac{1}{2}$ per cent. of the Napoleonic War borrowings were financed. But they have never been popular, for the holder is repaid in driblets which cannot be reinvested with like convenience. They appealed to the Chancellor of the Exchequer, because they compelled him to effect some redemption under the guise of annual interest charge. Life annuities run for the life of the person who holds them and are as old as the National Funded Debt itself. But there were snags in the business, so long as people were allowed to take out an annuity on someone else's life—like the notorious Marquis Steyn of Thackeray, who kept alive a sick butler of 90 for 5-6 years and made a handsome profit on him. Another snag, encountered by the Government and Insurance Companies doing annuity business, arose over the Quakers. For the Christian name is frequently repeated; and when one Jacob dies, there is likely to be another and younger

Jacob. Hence Government found itself paying annuities on "dead souls" in true Gogol fashion. Snag one was removed in 1852 when it was arranged that the annuity must be for the benefit of the nominee.

ORIGIN AND GROWTH OF THE NATIONAL DEBT

In *Great Britain from Adam Smith*, pp. 35-42, I give the concurrent progress of debt and taxation, 1783-1816, and an account of Pitt's Sinking Fund. Sydney Buxton, in *Finance and Politics*, II, Ch. 29, gives a resume of Debt Redemption down to 1875, by way of introduction to Northcote's New Sinking Fund of that year—New in opposition to the Old (informal) Sinking Fund, which was employed after the extinction of Pitt's Fund in 1828, and which consisted in the devotion of budget surpluses to the purchase and cancellation of debt stock. Finally, Mr. E. L. Hargreaves, *The National Debt*, Ch. 13, gives us the War and Post-War Borrowing of the Great War, and on p. 291 a highly convenient table of the Debt and Debt Charge at different times, from which I select the following:

Year	<i>In Million Sterling</i>		
	National Debt	Debt Charge	
1697	14
1763	132
1793	244
1815	834
1914	649
1925	7,646
			358

I wonder what the figures will be for 1945? On p. 292 he has an even more interesting tabulation of National Debt, Debt Charge, National Income, Population and Index of Prices. National Debt History may be epitomised in a sentence—virtually the whole of it was caused by war. But there is more to be said of its genesis in the crucial decade of the 1690's; and here the late Mr. R. D. Richards¹ is our guide—*vide The Exchequer Bill in the History of English Government Finance (Economic Journal History Supplement, February, 1936)*.

The Million Loan, the first loan in the English Funded Debt, initiated the system of Government Life Annuities

¹ Richards in *op. cit.*, pp. 193 *et seq.*

(1693). It was followed by the Bank of England (1694), which advanced its capital of £1·2 million to the Government in return for a charter of incorporation. Some years later the South Sea Company funded the unfunded debt, a commercial monopoly of the South Seas being the *quid pro quo*. Then during the silver recoinage, Chas. Montagu, William III's Chancellor, placed the first Exchequer Bills of English financial history. Their precursors were the Exchequer money orders of the Restoration. "A war with Holland originated the Exchequer order, and a war with France the Exchequer bill." From 1696 onwards these bills played an indispensable part in public finance, until in 1877 they were replaced by an equivalent in the form of Treasury Bills (the suggestion of Walter Bagehot). The D.P.E. says, "They are distinguished from the Exchequer bill by the fact that the maximum period of their currency is twelve months and that they are as a general rule issued for much shorter periods. They enable the Government to borrow money at a very low rate of interest. . . ."

In 1696, the Exchequer Bill was but a second string in the Chancellor's bow. The first string was the abortive National Land Bank of that year. But real estate could not or would not put up the money. So Montagu continued the fruitful contact of 1694 and again found what he wanted in the City. It is intriguing to place this episode in reverse with the Land Tax. The Land Tax of 1692 tried to tap the profits of office and trade, but ended in a 4s. rate on land. The Exchequer Bill, the second string in the bow of 1696, furnished what the Land Bank could not; and in return for their virtue merchants and manufacturers persuaded themselves and the majority of thinking men that it was wrong to tax their income, until Pitt drove through their barrage of protest and secured the wherewithal to settle Napoleon's hash.

CHAPTER XI

WAR FINANCE AND PITT'S INCOME TAX

If a shrewd psychologist with a flair for history were to join our ranks, he might write a very good book on Income Tax and Public Opinion. And he could do worse than take as frontispiece and tail-piece respectively the following:

We can inform Jonathan what are the inevitable consequences of being too fond of glory;—*TAXES* upon every article which enters into the mouth, or covers the back, or is placed under the foot; taxes upon everything which is pleasant to see, hear, feel, smell or taste; taxes upon warmth, light, and locomotion; taxes on everything on the earth and the waters under the earth, on everything that comes from abroad or is grown at home; taxes on the raw material; taxes on every fresh value that is added to it by the industry of man; taxes on the sauce which pampers man's appetite and the drug that restores him to health; on the ermine which decorates the judge, and the rope which hangs the criminal; on the poor man's salt and the rich man's spice; on the brass nails of the coffin, and the ribands of the bride; at bed or board; couchant or levant, we must pay. The school-boy whips his taxed top; the beardless youth manages his taxed horse with a taxed bridle on a taxed road;—and the dying Englishman, pouring his medicine, which has paid 7 per cent., into a spoon that has paid 15 per cent., flings himself back upon his chintz bed which has paid 22 per cent., and expires in the arms of an apothecary who has paid a licence of a hundred pounds for the privilege of putting him to death. His whole property is then immediately taxed from 2 to 10 per cent. Besides the probate, large fees are demanded for burying him in the chancel; his virtues are handed down to posterity on taxed marble; and he is then gathered to his fathers to be taxed no more.—*Sydney Smith, Edinburgh Review, 1820.*

Take notice, I have cut the throats of all my horses, I have shot all my dogs, I have burnt all my carriages, I have dismissed all my servants except my wife, and therefore I conceive I cannot be liable to any assessment whatever. (An Irishman's income tax return: quoted in William Smart, *Economic Annals, 1801-20*, p. 469.)

Jonathan got into this pickle, not only because he was too fond of glory, but because, like this Irishman of English domicile, he so hated Income Tax that he abolished it in 1816

and therefore had to shoulder the burdens aforesaid. A 2s. rate, projected into the first 10 years of the Long Peace, would have permitted the Chancellor of the Exchequer to dispense with every other obnoxious tax and to afford as much free trade as his brother in the Board of Trade at any moment desired. For England in 1816 enjoyed a comparative advantage in economic technique greater than ever before or since; and such a tax, in addition to being economically sound, was very desirable on distributional grounds. If it had been accompanied by a scheme of death duties in which real estate (land and houses) paid as much as personal estate (i.e. all other property), Huskisson's England would have been a fiscal Oceana.

The paltry total of the public revenue, after making all allowances for the smaller population, is perhaps the most striking fact in the fiscal history of the eighteenth century. Johnson's England and Adam Smith's Scotland were riding on the world's wealth—"evidently advancing" to employ the cautious language of the *Wealth of Nations*. But they none the less hated the thought that the State should secure any sizable slice of it, except by way of loans on which the Government would pay interest to the end of time; and they made certain of their own undiminished enjoyment of luxuries from without by a zone of coastwise smuggling which reflects the highest credit on the British capacity for improvisation. Hence the great tax reformers of 1782 to 1842, from the year when Pitt became Chancellor to the year when Henry Parnell died, are also the great smuggler-breakers: Pitt, Huskisson, "prosperity" Robinson, and Henry Parnell, excise reformer and paymaster general. The public revenue in the eighteenth century is estimated by William Kennedy, *English Taxation, 1640-1799* as follows:

	<i>Million Sterling</i>		
1714	5½
1776	10½
1799	32

the corresponding debt charge being:

1714	3
1776	4½
1799	17

It was this quadrupling of the debt charge (1776-99) which led to Pitt's Income Tax of the latter year; and both were due to the Napoleonic war. But we had fought in earlier times at least two other "world-wars" with France, the Hundred Years War of pre-Reformation England, and the War, or rather Wars, of 1689 to 1713 between William III and Marlborough on the one hand and Louis XIV on the other. That observant writer of Pitt's acquaintance, Sir John Sinclair, remarked that owing to the discovery of the funding system war had become as much a contest of treasure as of arms. It was just beginning to be so in William III's day: it was altogether not so in Edward III's day. Let us see, therefore, how the Kings of England financed great war without either income tax or funded loans.

They did not do it by faking the currency. Edward III's income tax and his avenue to borrowing were both provided by the prime staple of export, home-grown wool; and he played on it, as on a harp of many strings. He levied at least four sorts of wool tax, and at times combined the sorts in ways that were inconsistent with the operation of each. He took taxes on exported wool—the export "subsidy": taxes in wool: profits from the royal trade in wool: loan accommodation in return for the grant of a monopoly in wool. And the taxes on wool were mixed up with loans on the security of wool. Wool was at once the object of an export duty and a levy in kind, a security for past borrowing and a bait for the future. The royal I.O.U.'s on wool circulated through the mercantile world until they reached the unwilling hands of small traders and producers—just as did the Assignats of Revolutionary France. Thus the wool levies were the war taxes of the day—income tax, supertax and excess profits tax rolled into a composite one. Do not suppose that any pre-Reformation king ever got a true $\frac{1}{10}$ th or $\frac{1}{15}$ th of the real wealth of his subjects: these were always metaphors for a small fixed sum, which the king was lucky to secure in full. The elastic tax was the wool tax.

By William III's time there was a loan market in embryo, though hedged about with incertitude and privilege. More important was the gift of Holland: what we now call a sales (or purchase) tax, but which, being "cut off" from the

consumption of the country, was in those days termed an "excise." Excises hurt the poor; and Parliament under William III, benefitting from its own experience in the Civil War, arrived *circiter* 1700 at a land tax, which was an income tax gone wrong. For salaries and profits fell out of taxation, which settled finally on the rent of land and houses, and was assessed once and for all on particular properties at a fixed rate. Therefore by Pitt's time land tax at 4s. in the £ had come to be a phrase for a rent charge of £2 million; and Pitt's war taxation campaign began by getting the land tax out of the way under a scheme of optional redemption, so calculated that the Government saved as much in debt interest as it lost in land tax. This was in 1798.

In the same year Pitt made his first move towards a general tax on property. Remember that between 1783 and 1801 he produced 18 consecutive budgets, so that by 1798 there was concentrated in his brain more knowledge of the difficulties to be surmounted in securing the necessary public revenue than was possessed even by Gladstone in the 1860's. He foreshadowed an income tax on a percentage basis of true income in December, 1797, when in the first year of Bank Restriction he stated in reply to the fears of Fox, the defender of the nation's civil liberties, that "if the amount of every man's property could be ascertained, it would be a most desirable thing to make people contribute to the public exigencies in proportion to their wealth."¹ The budget of 1798 contained the Triple Assessment—a tax not on current income, but on past outgo. This tax, from which he expected £4½ millions, provided only £2 million (which incidentally was the yield of the full land tax); and voluntary contributions provided another £2 million. But the failure put him on the road to success, for under the Triple Assessment a person could get certain remissions if he filed in proof a declaration of income. This novelty Pitt used in the following year, 1799, when he levied an income tax—the first true income tax of English financial history. For the taxpayer had to file a statement of income, not to get a remission but to show his liability to tax, and he had to

¹ Quoted in A. Hope Jones, *Income Tax in the Napoleonic Wars* (1939), pp. 13–14.

accept without demur the amount to which he was assessed under any head, unless he was prepared to disclose the particulars of his income from every source. One can readily see that to Fox a tax compulsion of this sort would be "an impost against all principles of taxation, in fact a confiscation of property," as he protested in 1802. But the deed had been done; and when the breathing space of Amiens terminated in May, 1803, Pitt's successor ("Pitt was to Addington as London was to Paddington") reimposed it at half the pre-Amiens rate. But now, where possible, it was deducted at source, and this was the final blow. For there was no sure way of evading it. All that was left to the freemen of England was to cheat under Schedule D; and this they did, as zealously as their predecessors of the eighteenth century smuggled, until the companionship (you will groan if I say "companification") of industry curtailed this final solace.

All this is by way of introduction to the best little book of 1939, A. Hope Jones (Fellow of Christ's College), *Income Tax in the Napoleonic Wars*. I give, first, the chapter headings:

- I. Antecedents of the Income Tax.
- II. Legislative Development of the War Income Tax.
- III. Organisation at the centre.
- IV. Organisation in the country.
- V. Staff Recruitment and Conditions of Service.
- VI. The Yield of the War Income Tax.
- VII. The Tax and the Public.

I give next a letter from the author, indicating the *provenance* of his book and its most lively features.

About four years ago [*circiter* 1935], I noticed in one of the numerous Acts of Parliament dealing with the war income-tax between 1806 and 1815 a reference to the fact that duplicates of the income-tax returns were to be sent to the King's Remembrancer in the Court of the Exchequer. I thought that this might be important, and therefore went along to Professor Clapham and asked him what he thought of it. He told me that he considered it might lead to a major discovery.

This discovery was made about a week before I was due to sail for the United States in 1934. I spent my last two days in England in the Record Office, and discovered just enough to

suggest that this clue was not a false one. On returning from the United States, in 1936, I again went to the Record Office. I found that duplicates of the land tax returns and assessed tax returns sent to the King's Remembrancer were catalogued in the Record Office, but that there was no mention of similar income-tax returns being there. I therefore began to investigate the land tax and assessed tax returns. After some time I found that, hidden away inside the assessed tax rolls, there were similar rolls covering the income-tax returns. I reported my discovery to the Record Office authorities, who at first wouldn't believe me. As you will have noticed, in Appendix I of my book I give a fairly full analysis of the contents of the income-tax returns.

Perhaps the most amusing feature about the income-tax returns is the way people in the early years cheerfully allow themselves to be returned as defaulters. Even the local General Commissioners did not blush with shame to find themselves returned as defaulters. As, however, the income-tax inspectors became confident and greedy, the list of defaulters becomes similar to a modern list, and no longer does it appear to be a means of acquiring social popularity to appear on the list. Perhaps the best illustration of the ordinary dishonesty of people is shown by the extraordinary jump in the yield when taxation at source was introduced. With taxation at source the yield in the first year was approximately the same as the yield in the last year before taxation at source was introduced, with the rate only one-half of what it had previously been!

Another thing that comes out in the returns is that a number of people made a profitable living in acting as informers against people making false returns. Their bait was that they got half the double tax charged on such people. As regards the tax officials, they were, of course, as unpopular, or more unpopular, as the common hangman. The delight with which the *Sun* reports that a tax inspector, forgetting his dignity and slipping away after office hours with a woman of the town, lost not only his salary but the money of the taxpayers as well, is a good illustration of what the poor tax collector had to put up with.

But, as you know, income-tax is not a particularly cheery subject. At the same time, discovering these documents was about the most exciting experience I have had in my life. The sudden realisation that here was a complete picture of the whole economic life and development of this country at a critical stage of its history was positively staggering. It seems to me, and I know Professor Clapham agrees with me, that this completely new material provides an invitation to dozens of research workers, and historians, interested in giving a concrete

and authentic picture of the basis of nineteenth-century industrial and economic development in England.

You will find an article on that picturesque personage, the King's Remembrancer, in the *Law Quarterly Review*, XLIV: 35.

The facsimile, at the end of the book, of the declaration by Sir William Bellingham, Receiver, General for the City of London, of his property tax accounts for 1812, requires a little explanation. First, it gives the gross amount collected in his district: then, the deductions for commission, salaries, contingent expenses, and children's allowances paid out by him. The net total paid in follows. On the reverse the amounts paid in at different times are given separately, and they add up to the same net total, £717,000.

CHAPTER XII

HUSKISSON AND OTTAWA

WILLIAM HUSKISSON (1770-1830) AND THE OTTAWA AGREEMENTS OF 1932

Mr. Hope Jones is not the only lucky man; for the other day I had the good fortune to unearth in the Air-raid Shelter in Mill Lane a hitherto unpublished speech of William Huskisson, which enables me to answer, in words better than I myself could have framed, the question which you have already tackled in your paper. The question was: What would Huskisson have thought of the Ottawa Agreements of 1932? These agreements were concluded at Ottawa between Great Britain and other members of the Empire. They were to run for five years; and they were in process of revision, when the international crisis developed, which led to the outbreak of war.

The speech bears the heading "Exposition of the Imperial Policy of the Country," and it was delivered in the House of Commons on 21st March, 1942 (*sic*). I give it in full:—

The House having resolved itself into a committee of the Whole House to consider of the Ottawa Agreements of 1932, Mr. Huskisson rose and spoke in substance as follows:

"I will not at this late hour weary you with the fears and forebodings which greeted these proposals when they were introduced by the Chancellor of the Exchequer ten years ago, nor will I recall the aspersions which were cast upon him from irresponsible quarters, aspersions questioning both the sincerity of his motives and the purpose of his plan. I will only recall that one hundred and more years ago it was remarked similarly of the President of the Board of Trade, that he was 'an insensible and hard-hearted metaphysician, exceeding the Devil in point of malignity.'

I hold in my hand a Petition of Protest presented by the London Economist of 22nd October, 1932. This Petition asserts: (i) that the Ottawa undertakings will not be observed by the Dominions; (ii) that these agreements have deliberately restricted this country's freedom of manœuvre; (iii)

that they invite retaliation by the governments of other countries; (iv) that they give a bad example to the rest of the world. But what are the facts?

(1) The Dominions have most faithfully observed their share of the bargain over a period of years in which the faithful observance of contracts and treaties was all too rare among the great powers of Europe. They instituted Tariff Boards, which time and again resisted the importunate demands of their own manufacturers and workers. The Report of the Australian Tariff Board for the year ending 30th January, 1933, testifies to the spirit in which the agreements were carried out. It recommends a reasonable protective duty on classes of goods which are in sufficient demand to permit of their production at an economical figure, and a lower duty or free admission for other classes of goods. I will not disguise from the Committee that certain interests in the Commonwealth feared that these agreements had impaired its sovereignty and, after taking the advice of eminent counsel, claimed that it was entirely legal for the Executive or Parliament of the Commonwealth to disregard the recommendations of the Tariff Board. But having the power, they refused to use it, recognising the duty which liberty owes to power. New Zealand and Canada acted with a like restraint and moderated their tariffs to the point at which a further reduction might have impaired industries which would be vital in the event of war.

(2) The Petition states that we have sacrificed our liberty of manœuvre. Again I appeal to facts. I hold in my hands copies of the commercial treaties which His Majesty's Government very shortly concluded with our traditional allies in Europe and America: Norway, Iceland, Sweden, Denmark, Finland, the Argentine Republic and (more recently) the United States. The Dominions, however, rightly objected to the proposal of the agricultural interest in Great Britain that the meat and butter of the Dominions should enter this country in limited quantities only: or, alternatively, should pay an import duty, the proceeds of which would be added to the prices received by the British producers of the same articles. I cannot conceive of a greater injustice than to close our ports to these great

countries of the Empire or to make their farmers contribute to the receipts of their competitors in this country. Nor one which is more impolitic; for how except by an open trade can they meet the interest on the loans which they have raised in the London market? It is by liberal treatment and by admitting the inhabitants of these distant lands to our own market as much as possible that we may hope to maintain a state of imperial connection which is beneficial alike to them and to us.

(3) The Petition states that we shall court the retaliation of foreign countries. Sir, this is a fear resting on a pretension unheard of in the commercial relations of independent States. We claim only to treat the countries of the Empire, as the Federal Union of America treats its own States; and I can assure the Committee that in a similar situation in my own day the Government of this country met retaliation by retaliation and thereby brought it to a speedy end.

(4) The Petition states finally that we have given a lead which points clearly to the impoverishment of the world. But I ask the Committee to remember the zeal with which this country and its Dominions have pursued and fostered the trade between themselves and also with foreign countries. The liberal assistance granted to Turkey has changed a former enemy into a present friend, and I read some little while ago of a plan for the interchange of Japanese silk and Australian wool, promoted by the Government of that Commonwealth.

But if I am not wearying the Committee (cries of "No, no. Go on") I will mention a certain particular in which, as it seems to me, the Ottawa Agreements fall short. I see no provision for an imperial marine, nor for the better health and training of the seamen of the Empire. The Navigation Acts, as I left them in 1827, reserved strictly to British, including colonial, shipping all trade between the Mother Country and the colonies and between one colony and another. I regret that this limitation was withdrawn by those who came after me, and I appeal now for a generous policy of imperial communications by sea and air, so that we shall not depend in the hour of need upon the chance services of foreign countries. As defence is of more

importance than opulence, the Act of 1939, providing for the purchase of Imperial Airways by a corporation controlled by the British Government, is perhaps the wisest of all the commercial regulations of modern England—if I may be allowed to echo and adapt the sentiments of Dr. Adam Smith.

This, then, is the imperial policy which I recommend to the Committee to-night. It is a policy which was promoted by William Pitt, the political child of the Wealth of Nations, and which in my day, with the help of Canning, my revered master, and Thomas Baron Wallace, my predecessor in the Office of the Board of Trade, I endeavoured to strengthen and ease. But a policy alas! which was smothered by the exigencies of Irish famine and which lay entombed for fifty long years in the leaden shell of Gladstonian finance, until it was brought to new life by the father of the first Minister of that Crown under which this country and this Empire will, with God's help, overthrow a menace greater than that of Napoleon Bonaparte.

I beg therefore to move the following resolutions:

(1) That it is expedient to renew the Agreements for regulating the trade between this country and His Majesty's possessions overseas for a further term of five years.

(2) That it is expedient to continue and extend the treaties of amity and commerce with Norway, Denmark, Sweden, Finland, the Argentine Republic and the United States of America."

Mr. Huskisson sat down amid general and prolonged applause.

CHAPTER XIII

TOWN AND COUNTRY

If Telford, the engineer, had been required to attend one of these lectures, I think he would have chosen this. Professionally sensitive to strains and stresses, he feared that the England of his day was becoming top-heavy with industrialism, and he valued improved communications not only for their service to industry but even more for their service to agriculture in widening its market and source of supplies and restoring the balance between the industrial and agricultural population.

Two centuries of industrialism have accustomed us to contrast the routine and confinement of the great town with the free breath of the countryside. "On peut dire que toute l'Angleterre est condensée dans sa capitale," wrote a foreign visitor in 1741. We of 1939 have something more remarkable to show; for the evacuation of London into the provinces has filled them to overflowing. But in the days before the Great War the moral emphasis was different. The town and not the country is then the place where men breathe freely. It is the home of civic freedom, and the serf who resides within its walls for a year and a day becomes thereby a free man. "City air makes free."

The origin of the burgh, as towns superior to market towns were called, is veiled in obscurity. In England they appear to have been connected originally with defence, so that burgherman = fortress man = bourgeois. But undoubtedly they grew because they were places of trade. Pirenne, the great Belgian historian, insists that from its very beginning commerce developed under the régime of personal liberty. Merchants had to have a permanent place of business, and so in the Netherlands (his own country) they collected at a *poort* (portus), which is the Flemish word for town. These *poorts* were depots for merchandise and trading bases, and they grew up near a fortified burgh. "But" says Pirenne, "it would be quite incorrect to believe that the 'burg' had

given birth to the Town. The Town was in its immediate neighbourhood, but it did not develop out of it . . . the 'burg' was intended for military purposes only; its garrison of Knights lived on the revenue of the neighbouring soil, and its size remained stationary. The *portus*, on the contrary, lived only by commerce, and, growing in proportion as its increasing activity attracted newcomers, it soon surrounded the ancient feudal fortress with its new quarters, shut it in on all sides, and finally absorbed it . . . from thenceforth the *portus*, in the centre of which the old burgh was falling to ruins, became itself the *burg*; and from the end of the eleventh century its inhabitants bore the new name of burgesses (*burgenses*), so that by a curious change of meaning the 'bourgoisie,' born of commerce, was designated by a name borrowed from feudal language."¹

In England the burgesses held their lands and tenements by burgage tenure; and the most important burghs, the royal burghs, became units in the organisation of the country, like the rural hundreds and shires. They paid to the king a fixed money rent known as *firma burgi* in return for privileges, of which the most important were mercantile. The *firma burgi* was called the fee farm of the town, and that of Cambridge was bought by Sir George Downing from the king and formed a part of the original endowment of Downing College. The burghers usually got the right to form a gild merchant, thereby uniting the traders of the town in a society which regulated its trade and had the monopoly of it. Even more valued was the exemption from tolls at markets or fairs in other parts of the country. Such a privilege the Kings of England granted wholesale to their burghs, and thereby knit England into a net-work of inter-municipal reciprocity, by which the barriers to internal freedom of trade were broken down.

Adam Smith, it is interesting to remember, only applies the phrase "free-trader" to those privileged burghers who had procured exemption from tolls by means of "a sort of poll tax"—the *firma burgi* aforesaid. "Such traders," though in other respects of servile—or of very nearly servile—

¹ *Economic History Review*, II, 1. H. Pirenne, "The Place of the Netherlands in the Economic History of Medieval Europe."

condition, were upon that account called free-traders" (I, 372). It was the beginning of a long evolution, which culminated in the removal of protective duties on foreign imports, i.e., in free trade, as we think of it. The sequence was:

- (1) The removal of local barriers set up by local bodies in their own interest.
- (2) The removal of regulations restricting the internal trade in wool and corn; and the abolition of excises which interfered with the processes of domestic manufacture.
- (3) The removal of all but revenue duties on articles of export and import, these being offset by countervailing duties, to avoid incidental protection.

The trade of the nineteenth century was freer than that of the eighteenth century, and so on backward through the centuries. With this increased freedom of trade went a parallel increase in the range of the market.

On the political side the towns played a leading, if somewhat niggardly, part in the winning of constitutional liberty. Though they owed their enfranchisement to the king, they resisted his attempt to tax them without their consent. When he was hard pressed for the financing of war, the House of Commons, in which their representatives sat, exacted constitutional privileges as the price of their pecuniary support, and thus the control of the Commons over taxation was established. The Commons opposed the grant of monopolies to the court favourites of Elizabeth and Charles I, and in the ensuing struggle the towns, headed by London, supported Parliament against the King.

However, though their birth was a landmark in the history of freedom, the exercise of it caused them in time to become enemies of freedom. For the rules imposed by the gilds and companies of corporate towns confined industries to established grooves and limited the entry of new-comers into them. This exclusiveness was always prompting industries to slip out into the country. For this cause the early woollen industry left Beverley and York for the then rural district of the West Riding. Similarly, as we have

been taught to believe,¹ James Watt was prevented from establishing himself as an instrument maker in Glasgow, and forced to conduct his experiments on the steam engine within the privileged shelter of the University. Though sometimes damaging elements in the country, the growth of towns enriched it on the whole, and this in a variety of ways.

(1) They afforded a ready, and in Great Britain, a near by market for the produce of the countryside.

(2) They brought capital into the country both directly through the purchase of estates by merchants and indirectly through the marriage of the landed aristocracy with commercial families. "Merchants are commonly ambitious of becoming country gentlemen, and when they do, they are generally the best of all improvers."² The landlords of the eighteenth century were great improvers alike in England and Scotland, but there is no evidence that the capital which they expended on the land came from the profits of agriculture. The law fees of Chief Justice Coke built up the inheritance which came finally to Coke of Holkham. In general their wealth came from colonial property, mineral rights, and urban rents, particularly those of London.³

(3) The cities promoted civilisation, and civilised the nobility out of their feudalism. In Adam Smith's way of putting it, the luxuries which commerce dangled before them caused them to prefer rent-rolls to retainers, with the result that they became as peaceful and "as insignificant as any substantial burgher or tradesman in a city."⁴

But it is well to remember that cities can be bellicose no less than barons—as the history of medieval Italy shows, and we must ascribe the security of English life in part to the reign of law imposed by the strong arm and administrative talent

¹ But Mr. H. W. Dickinson (*James Watt*, p. 26) attenuates this old friend. The original authority is Professor Joseph Black: "Being molested by some of the corporations who considered him an intruder, the University protected him by giving him a shop in their precincts." But there is no trace of proceedings against Watt in the records of the Corporation of Hammermen or the Dean of Guild Court.

² *Wealth of Nations*, I, 382.

³ In "English Landownership, 1680-1740" (*Economic History Review*, Vol. X, No. 1), Mr. H. J. Habbakuk shows how in Beds. and Northants. old families were replaced in this period by lawyers, doctors, goldsmiths, and tradesmen, whose main interests and sources of incomes were in London.

⁴ *Wealth of Nations*, I, 389.

of the Plantagenet kings, and in part to the happy geography of an island which it was difficult to invade.

Adam Smith believed that the order of things in which commerce came before agriculture, in which, as he says, it was the cause and occasion instead of being the effect of the improvement of the country (I. 390) was somehow wrong: and that it was "slow and unnatural" beside the order exemplified by "the rapid advance of our North American colonies of which the wealth is founded altogether on agriculture." (*ibid.*) But in fact nothing has been more remarkable than the inability of new countries to grow rich on agriculture, in the first instance. Lord Durham in 1839, when compiling his report on Canada, looked with wistful eye to the prosperity and bustle in the States across the border with their good roads and thriving settlements. He ascribed it to a superior policy of land settlement. Superior to that of Canada it may have been, but it was defective in itself. For not until the Homestead Act of 1862 was a really democratic land policy introduced. What Lord Durham had witnessed was the favourable reaction of the countryside to the rapid growth of industry and commerce in the coastal regions which it served. This commerce was based on maritime enterprise; and from it America, east of the Appalachians, obtained the resources wherewith to cross the mountain barrier and develop the great riches of the interior continent. Similarly, it was gold and not agriculture which precipitated British Columbia, Australia, New Zealand and South Africa into economic manhood.

In nineteenth-century England the struggle between town and country was fought around the Corn Laws, and terminated in favour of the towns. Adam Smith wrote at about the time when England was becoming an importer of corn on balance. She had not always been self-supporting. In early days, when the Hansards of the North and the Italians of the South (the "Flanders Galleys" of Venice and the Genoese carracks) handled the foreign trade of England, corn frequently entered from the Baltic. Landlords could make more profit from raising sheep and selling wool than by raising corn in the England of 1450-1550; and Tudor statesmen viewed with alarm the diversion of land from the

plough to the sheep run. They feared in particular, the loss of man power, while moralists lamented the decay of rural simplicity. Many efforts were made to repress enclosure for sheep farming. But after 1600 the price of foodstuffs rose relatively to that of wool, and though enclosures continued throughout the seventeenth century, towards the end by judicial decree, they were incidental to the improvement of cultivation and certainly were not a cause of rural depopulation. 1660 saw the last of civil war on English soil, and for the next 100 years 1660-1760, except in years of harvest failure, there was a substantial surplus of wheat for export. French merchants spoke of England as the granary of Europe as late as 1766. This export was encouraged by a bounty, which was offered on occasion before 1688 and granted regularly under the Corn Law of 1689 right down to the 1760's. During the Napoleonic Wars England all but lived of herself, thanks to her new technique. Scotland leapt into the van of improvement, and Ireland figured as a new source of supply from overseas. Until 1846 the increased productivity of British agriculture all but kept up with the increase of population; and the researches of William Jacob, Comptroller of Corn Returns, into the extensibility of the European corn supply in the 1820's showed how limited this was. The Corn Laws were repealed in 1846 in the decade in which, if they had been maintained, they would for the first time have seriously contracted foreign imports and seriously raised the price of bread. The 'forties may have been hungry, but it was the landlords and farmers of England who had kept England better fed than the countries of Europe from Waterloo to the year (1841), when Peel formed the Government which abolished them.

In the next lecture I deal with open-field agriculture and its decline. At this point I am thinking of it in relation to urban life and seek to show how industrialism, when it came, wrought similarly in the New World, with the result that in the twentieth century the balance between town and country became as urgent an issue in the United States as it was in Telford's England.

A very good because a very broad lead is given here by Mr. E. W. Shanahan in two journal articles: (1) *Economic*

Journal (Sept., 1927) "Distribution of Population between Urban and Rural Areas"; (2) *Economica* (March, 1928) "Great Cities and their Economic Problems."

From the former, pp. 399-400, I take the following:

As an increasing proportion of the labouring and directive forces was released from agriculture in older potential manufacturing regions with the advent of cheap farm produce from the newly-developed areas, those older regions were in a position to devote increasing attention to the manufacture of transport material and farm and other equipment for the further development of new lands. The latter in their turn provided further increased supplies of cheap food and raw materials which intensified the changes already in progress in the older regions; and so on indefinitely within the limits set by the area and the unexhausted natural fertility of the new lands. Similarly also, within the borders of a given country, any increase in the use of machinery in agriculture tends to add to urban populations and to diminish the rural through the increased employment for mechanics in engineering industries in towns and the diminished demand for agricultural labour to produce a given volume of farm produce. The development of railways and other modern means of transportation not only renders possible the exchange of farm produce against manufactures upon which the increased use of farm machinery depends, not only creates increased employment in towns for the production of transport material and rolling-stock, while it diminishes the demand for the services of wheelwrights and blacksmiths in the country, but also tends to lead to the concentration of transport employees in towns whence the routes radiate. When the average haul was short as in the old pre-railway village days, the waggoner had his headquarters in the farming districts, while with the longer average haul and speedier movements of modern times, the railway employee and the motor-lorry driver have their homes and their headquarters in the towns.

Mr. Shanahan's range is catholic. The problem, as seen through American spectacles, may be abbreviated thus:—

(1) The revolution in transport was ahead of that in manufacturing and mining, proceeding *pari passu* with the settlement of the Prairies, the Gulf States and the Pacific Coast. The steam boats on the great rivers and lakes were phase one. The transcontinental railways, focussed in the United States on Chicago and in Canada on Winnipeg, were phase two. By 1914, when refrigeration had been perfected

and the frontier had come to an end somewhere on this side of the Rockies, America was in continental equilibrium—the manufacturing East supplying the agricultural South and West. This agriculture, moreover, as Alexander Hamilton had desired, was highly regionalised—cotton in the South, cattle raising in the foot hills, cattle feeding in the corn (*sc.* maize) belt: hard wheat in the Dakotas, soft wheat in Kansas and other States of the same latitude, both wheats in Washington State: citrus fruits in California: creamery products in Wisconsin, Land o' Lakes (*sc.* the Great Lakes)—and so on. Agricultural exports, though always declining relatively to the home market, remained nevertheless important; and they kept alive the stream of trade with Europe, despite a tariff on European imports which atoned for any little fall by a subsequently greater rise.

Then came the war, 1914–1918, to speed up the process of industrialism, alike in town and country. In the towns an impressive change was witnessed in the localisation of the textile industry, the centre of gravity shifting from New England to the Piedmont of the Carolinas alongside the old cotton-growing area. In agriculture itself there was a process of industrialisation, which it is not improper to call a second agricultural revolution—reckoning Tull as the father of the first and Henry Ford as the step-father of the second. The outstanding characteristics of the new agriculture are that it is prolific, commercial and mechanised—exactly like Henry Ford. Herbert Hoover opened the presidential campaign of 1928 at his old home town in Iowa with a speech on "Then and Now":—

In the old days, when prices fluctuated in the Chicago market, at the most they affected only 20 per cent. of the income of the farm. A violent drop in prices could reduce the family income by only 4 or 5 per cent. To-day the same fluctuations, affecting as it does 80 to 100 per cent. of the income of the farm, can take 25 or 50 per cent. away from family net income and make the difference between comfort and freedom from anxiety and on the other hand debts and discouragements. (Press Report.)

In the winter of 1928 the stock markets were still booming, and America was in no mood to resist a policy based on a combination of continued protection to urban industry and

handsome subsidies to an about-to-be as prosperous agriculture. Yet within five years the economic machine had come to a standstill, and, in spite of all that his successor Franklin Roosevelt could do, it never really got back to full speed till the frenzy of totalitarian Europe gave a fillip to re-armament and the sale of munitions abroad. A mad world, indeed, with some doubt as to which is the madder half.

CHAPTER XIV

LAXTON AND THE OPEN FIELDS

Some time or other in this course I hope you will be curious enough to ask yourselves:—If this and that happened in England between, say, 1660 and 1846, what things of a corresponding sort happened in other parts of the British Isles, in other countries of Europe, on other continents of the world during the same, or approximately the same, interval of time? I say “approximately,” because 1660 and 1846 are landmarks peculiar to English history—the Restoration of the Monarchy after the Cromwellian Commonwealth and the Repeal of the Corn Laws, when the agriculture of our then United Kingdom of Great Britain and Ireland yielded pride of place to industry.

This curiosity I should in chief like to evoke concerning the subject of open-field agriculture. I think I can approximate the answer for America, India, Denmark and Africa. I have a half knowledge of the answer for Scotland, Ireland, Germany and France. I just don't know the answer for Holland and other countries of Europe, for I cannot read Dutch, and when I turn over the many pages of Heaton, Eyre or Knight, Barnes and Flügel, I find that they jump from medievalism to modernity at a pace which leaves me standing.

This lecture is therefore divided into three parts:—

1. A close-up view of the open field system, as yielded by the all-important survival at Laxton in the county of Nottingham, England—anent which a distinguished economic historian is reported to have said “What we need is fewer documents and more boots,” to which I would add, “and more wings, too.”¹

2. A summary picture of the rural scene about 1750.

¹ In September, 1937, I flew from Croydon to Budapest (Cologne—Halle—Leipzig—Prague—Vienna). The poplar avenues of Belgium looked like hedges: smoke belched from what I guessed to be munition works and chemical plants in Germany: Bohemia was a Cotswolds in which all things nestled. The stretch from Vienna to Budapest was mountainous till we reached the spacious grandeur of the Hungarian Danube.

3. A comparison with India and Africa, supplementing that made with the United States in *Great Britain from Adam Smith*, pp. 245-50.

(1) Of references to Laxton there are many, but two stand out, J. A. Venn, *Foundations of Agricultural Economics*, Ch. I, and C. S. and C. S. Orwin (Charles Stewart and Christabel Susan), *The Open Fields* (1938), which consists of a learned medieval introduction followed by a full-dress picture of Laxton. Both books contain photos of its open fields.

As all know, the opposite of the open field in the enclosed farm; and in England, because of the plenty of wood and the value of shade for cattle, the enclosure took the form of hedges of quick-set and leafy trees except in the north, where stone replaced wood. But from early times there were some enclosures in the open-field village: the curtilage of the cottages, the park of the manor house, the precincts of the church. These were building enclosures. The law calls the house with its etceteras a messuage. Medieval England, as I picture it, had not the unwalled gardens of Toronto or a prairie village. It is only where land is abundant and labour scarce that you have few gardens and fewer walls.

But in addition there were intakes from what had once been open field—"several in open"—i.e. separately owned, in the midst of "inter-owned," property. "Inter" is the particle on which to concentrate. The land units in the open fields were intermixed: the strips of one with the strips of another. Therefore the adjective which we rightly apply to the enclosed farm is "compact": in India they say "consolidated."

The Orwins throw a beam of light on the significance of this inter-mixture by pointing out that with the development of commercial farming inequalities in the value of land were adjusted by differences in rent per acre. The medieval village made the adjustment directly by assigning to each cultivator a share in different qualities of land; and the adjustment was very desirable in a country with such an erratic geology and varied land surface as England had. But though there was communal equality, there was no

communism. The communal relation stopped short at "co-aration" and a common time table. The carefully defined rights in the open fields and adjacent common waste were in respect of this and that individual.

The land unit is a real puzzle. It is a unit of plough economy. The plough, with its coulter (*cf. couteau, cutter*), its share (*cf. shears, scarifier*), and its mould board, created the long furrow of 220 yards—the furrow long, fur-long, and so the strip farms of the open fields. The unit of width takes us into cricket.¹ For they ploughed to a ridge; and the distance between ridge and ridge, or, what comes to the same thing, between furrow and furrow, was 22 yards, the length of 5 ox-goads, which is the length of our cricket pitch. The standard furlong of 220 by 22 was known as a "land." A strip or parcel of land might contain only one "land," but it also might contain several. Where the plough turned, there was a "headland," and at corners, where the lie of the land and water caused irregularities, there were odd shaped "lands" called "gores."

Now there is no reason to suppose that between each land or even each parcel there was commonly a grass balk; for that would have been too wasteful. But there might be; and whether there was or not, the medieval youth taking a clod of earth could aim it with effect at a stone set up on the next balk (or furrow ditch)—a distance of 22 yards. Cricket as a word means crutch or hooked stick. For the clod became a ball; the stone became a stump; and the defender kept out the ball with a stick. But such time wasting and soil trampling by farmers' boys told off to scare away birds annoyed their employers, who chased them on to the village green, whereupon the pastime specialised into sport. Instead of retaliating by heaving another clod at your opponent's stone, you now batted a ball, and if you hit the ball away, you ran to the bowler's stump, while he ran after the ball. Hence a run. In Johnson's England it was single wicket cricket, with just two stumps foot-high; and in the space between the two was a "popping" or "block" hole. Over the two stumps was a single bail, and you were bowled out, if the ball went in between. You were stumped out if you

¹ Cf. J. A. Venn, *op. cit.*, p. 10.

failed to get you bat back into the popping hole before the wicket keeper popped in the ball. I do not know if there was any l.b.w. But obviously there would not be till pads were allowed; and as you bowled underhand, you could not be "no-balled" for a shy. The bat of that day was in shape rather like a fish knife, and the bowling consisted of under-hand sneaks. Thus arose the national game: the product of arable farming, green grass and boyish ennui.¹ America has evolved baseball, with pitcher and striker and a cage for the keeper's face; for its grass is not good enough for bowling. It is fashionable to compare Australia with the United States, but the one is separated from the other by the great gulf which lies between cricket and baseball. "Don Bradman 200 not out"; "Babe Ruth hits home run." Need one say more?

But to return to farming. Well, there is really only one thing to do. Put up at the Hop Pole, Ollerton, and cycle over to Laxton, being careful to shut the gate which divides Laxton and its common and open fields and homesteads ("tofts") from the world without. Call on the schoolmaster and pore over the village map. I have before me the poorish sketch I made 30 years ago—West Field, Mill Field (with windmill), Little Field, South Field. In South Field there was a delicious intake, marked "several in open," of which I always think whenever I meet that phrase. Streams and undulations run through some of the fields, and this makes broken grass land—"sikes" on which cattle can graze. These sikes are auctioned now-a-days, but at one time they were grazed by tethering; and thus cattle could be allowed on them, while the adjacent crops were growing. In what one may term the heart of the village, or rather villages (Laxton and Moorhouse) are church, inn, homesteads and precious enclosed meadowland.

The central discussion in the Orwins' book relates, rightly, to the winter feeding of livestock; for that is where the system ultimately broke down. We have been taught to speak of bread corn (wheat), drink corn (barley) and fallow. Rather, say the Orwins, we should speak of bread field, fodder field and fallow field. Spring-sown fodder crops furnished winter

¹ If this account of origins strains credence, I plead that it is less far fetched than the boy of the *Wealth of Nations*, I, II.

feed over and above straw and cured hay; and they were beans, pease, barley, vetches, and perhaps clover to mow for hay. We are still in pre-Tull England, and that is the same thing as saying pre-Townshend England (Tull 1674-1741, Townshend 1674-1738). Therefore we are not likely to smell those myriad little water flasks, called turnips, on which Norfolk agriculture was sustained.

I asked the parson and the schoolmaster in turn why Laxton survived. The parson said that the lord of the manor liked a big field for a gallop with the hounds: the schoolmaster that the natives stuck to a system which outsiders could not cope with. Perhaps a Scottish drover had passed that way! The Orwins explain it thus (*op. cit.* 182 *et seq.*):

More than 500 acres is still farmed in common under the three course rotation. The sikes, commons and waste remain, and the common grazing and grass lettings go on as before. Until 1867 there was still a freehold of 675 acres, but when this had passed to Lord Manvers by exchange with Lord Saville, and enclosure might have been more easily arranged, the Golden Age of English agriculture was passing. Enclosure, with all the expense it would have entailed . . . could not lightly have been undertaken.

Moreover, Lord Manvers' spare cash was then going to the building of Thoresby Park. But finally, c. 1904-6, the Thoresby agent effected a consolidation of strips, which removed some of the inconveniences that sale and inheritance had brought about in the course of years.

(2) On the general position in 1750 I have nothing new to add, but draw your attention to another piece of work by Mr. Orwin, his chapter in *Johnson's England: Agriculture and Rural Life*, in which emphasis is laid on the difference between the western and south-western counties and the rest of England. In the former, as to-day, "grassland predominated over ploughland, fields were mainly small, and the rural community, though living largely in villages and hamlets, were to be found also in homesteads scattered over the land they occupied." Elsewhere, in general, "the land other than wastes and forests was occupied mainly as ploughland and in very large fields, with a concentration of the

population in villages."; and these are the areas where the greatest changes have occurred since 1750.¹

(3) Lastly, I compare Laxton with Phillaur in the Punjab, and with a village of tropical Africa. For anything short of an *Industriestaat* England possessed in the open fields of the Laxton type a permanent agriculture. She had rotations, fodder crops and manure-yielding stock. There is much evidence for deterioration of pasture and mongrel stocking: little evidence of soil exhaustion. The equipment for drastic wheat mining was, in any event, lacking. Religious sanctions and habit of diet prevented, and still prevent, in India that mighty sustainer of soil fertility, the union of livestock with cropping. Night soil is an imperfect substitute. Moreover, pre-enclosure England rarely suffered, as pre-canal Punjab suffered, from draught-caused famine. The prevalent trouble was too much rather than too little water.

What England calls enclosure, India calls consolidation. Now, as seen through Indian spectacles, consolidation is a remedy for one, but not both of two evils: land dispersion in space and subdivision of ownership (*morcellement*, as the French say). The first can be remedied by voluntary co-operative association, and here the Punjab has blazed a trail. Never shall I forget my day in the consolidated village of Phillaur (adjoining Ludhiana) with its compact holdings, new roads, improved wells and real men. But *morcellement* (for which I plead that the English translation be "fragmentation") depends on the law of inheritance and therefore requires legislation to reform it. In England, enclosure cured dispersion, that indeed was one of its purposes (the other being freedom for experiment), but it also "cured" fragmentation into the opposite evil of the engrossing of land. Helped by the laws of primogeniture and entail, large estates were built up,² and every Enclosure Act added to the prospect of augmentation. For it dislodged those with uncertain tenures and translated those with certain tenures into a new atmosphere which was often fatal to their survival —all this without taking into account the unknown pressure of legalistic *force majeure*.

¹ Johnson's *England*, ed. Turberville, I, 265.

² Cf. H. J. Habbakuk, in *Economic History Review*, X, No. 1, pp. 5-8.

The comparison with a village of tropical Africa brings to the mind the phenomenon of shifting cultivation, by which a primitive agriculture evades the penalty of constant cropping on the same ground. *Chitemene* is one of its African names (*African Survey*, p. 879). The natives burn down trees and sow the burnt land; and after several seasons move on to a new patch, leaving the woodland to recover, as in time it does, by natural reforestation. This is stage (a) of rotation in agriculture. Stage (b) is represented by the open-field agriculture of well-wooded Anglo-Saxon England. The woodland is drawn upon for acorns, beech mast and fuel; but within the cleared area of the open fields cultivation rotates from great field to great field. Thus, the wheat field of one year becomes the barley field of the next and the fallow field of the third; and since each great field occupies in turn the main labour force of the village, this latter is itself rotated: sowing wheat in the fall of the year, barley, etc., in the spring, cleaning the fallow land or mowing hay in the summer, and reaping the cereals in the early fall. Stage (c) is the rotation of enclosed agriculture. Each relatively small field is now on its own rotation: its two or three or four or five year course, as the soil may require. The labour force is organised around the single farm; and each farm contains within itself the pregnant fusion of crops and cattle. It is production for the market and it calls for labour the whole year round. It thus approaches the nature of factory industry, where production is a continuous flow. All year dairying is a special example of this.

Therefore, if we stand far enough away from it, we can see that the open field system of England was a relatively advanced form of agriculture, resting technically on the great plough that a team of oxen or horses could pull. It is midway between primitive tribalism and modern individualism: in fact, medievalism at its static best.

CHAPTER XV

A BOUQUET FOR RURAL SCOTLAND

When Scotland and agriculture are mentioned, the next word to be spoken must be "improvement," and in considering the relation of agriculture to improvement three broad considerations must be borne in mind:—

(i) Not until the publication of the German chemist, Justin von Liebig, *Organic Chemistry in its Applications to Agriculture and Physiology* (1840) did agriculture begin to be a science in our sense of laboratory science. This work, which treats of the relation between the nutrition of plants and the composition of the soil "revolutionised the attitude which agriculturists had maintained towards chemistry."¹ It started the "hook-up" between agriculture and each one of the developing experimental sciences—chemistry, botany, biology, physics, and finally the science of the soil itself, "pedology" as it is called. But for many years before 1840 there was much ingenious speculation and experiment in agriculture. Indeed, from 1660 on, agriculture was as scientific as science itself, and Mr. R. Lennard in *English Agriculture under Charles II* gives us Chapter I of the story. The "Georgical Committee" of the Royal Society (not Royal Agricultural Society) organised a questionnaire in 1664; and Mr. Lennard analyses the findings under chosen headings: ploughs and ploughing, manures, paring and burning, crops, choice of seed, times of sowing, yield of corn, rotations. "I am struck," he concludes, "with the attention that was given to differences in the soil."² A century later (1777) James Anderson, the Aberdeen farmer, formulated the first statement of the classical law of rent, "In every country there are various soils, which are endowed with different degrees of fertility, etc."³ In 1814-15 Malthus, Ricardo and Edward West made the three-cornered pronouncements

¹ R. E. Prothero (Lord Ernle), *English Farming: Past and Present*, p. 366.

² *Economic History Review*, IV, No. 1, p. 45.

³ The paragraph is given in full in Cannan's *Theories of Production and Distribution*, p. 220.

from which it is usual to date the laws of rent and of diminishing returns in agriculture. The period of gestation was therefore very long; and it is symptomatic of the unscientific nature of economics itself that this trinity disputed for priority in the discovery of something which derives plainly from a questionnaire of 150 years back.

(ii) The second consideration is indicated by Mr. Orwin in language that cannot be bettered:

The English countryside, as it is displayed to-day, is entirely the work of men's hands. . . every fraction of value it possesses attaches to it not by the bounty of Nature but by the prodigal expenditure of the labour of succeeding generations, applied to bend her to their service.¹

It would be so very convenient if the rent which a farmer pays consisted of two traceable parts (1) payment for the original indestructible properties of the soil (i.e. economic rent), (2) payment for improvements (i.e. interest on capital sunk in or on the land). But it does not. The original properties cannot be isolated: there is little in Nature (as the New World amply shows) which cannot be destroyed. Economic rent, in agriculture, is therefore a minus quantity, unless we concentrate on the property which is common to it and urban land, its situation value, which varies with the progress of society.

(iii) Progress in agriculture and industry proceeded *pari passu* and with constant interplay. But agriculture showed the way in point of time. For Tull (1674-1741) was agriculture's Watt (1736-1819)—as crochety as he, but every bit as crucial. Pre-Tull agriculture is old time agriculture, just as pre-Watt industry is old time industry. Now, between the publication of the Horse-hoeing Husbandry, 1733, and the patenting of the Steam Engine, 1769, a remarkable thing was happening to agriculture. Merchants, nobleman and the first statesmen of the land were investing the profits of imperial trade and the fruits of European travel in the soil and livestock of a comparatively little island. Coke's Norfolk was the classic outcome. Subsequent to this, and of its own brand, was the performance of the Scottish Lowlands, when agriculture and industry leaped forward from nearly

¹ Johnson's *England* (1933), ed. A. S. Turberville, p. 285.

nothing to an eminence that was pre-eminence in the generation which is marked by the life span of Napoleon—1769, when Watt patented his engine: 1821, when Coke held his last sheep-shearing, and the banner of agricultural advance passed from Norfolk to the Lothians.

These three things said, we may now, in the company of Sir John Sinclair, the first President of the Board of Agriculture (established 1793), "condescend to particulars." In his *Systems of Husbandry* (1814) Sir John, with endemic prolixity, lists, in an appendix, 14 "circumstances which have indirectly contributed to the excellence of Scottish Husbandry."¹ They boil down to four:

(a) The hard climate and the scantiness of the fertile belt—this is in the vein of A. J. Toynbee's *Study of History* (1934).

(b) The high regard for agriculture—the love transferred to it from gardening, the brains brought into it from trade and engineering, the respect instilled by the example of the clergy, each cultivating for life his little portion of land.

(c) Correct method—the outcome of that teachability which comes from a truly national system of education, such as eighteenth-century Scotland enjoyed.

(d) Improved communications—"the great attention that has been paid to the improvement of the roads." For "a farmer can afford to pay a much higher rent where he has that accommodation. . . . Canals also have, in some cases, been of use; and iron railways are likely to become of considerable advantage to the interior districts."

Sinclair instances the Berwick-Kelso railway, which was mainly on the English side of the border, and he also expresses thanks to the border counties of England for their lead in the type of convertible husbandry (alternate grain and green crops) which suited the soil of Scotland. Be it remembered that in the eighteenth century the brothers Robert and Charles Colling of Teesdale improved the dairy cow as much as George and Robert Stephenson, father and son, improved the travelling engine. The Durham Ox, their famous short-horn sire, travelled all England and was admired by as many persons as ever gaped at Stephenson's Rocket. Already in Vol. I of the main text Sinclair has listed the

¹ *Systems of Husbandry*, Vol. II, App. i.

circumstances which contributed *directly* to good husbandry—long leases, good banks, the General Enclosure Act of 1695, the “inferior capitals of the Scotch Farmers, which constrained them to a system of management distinguished by economy and simplicity”—to mention the chief. So now for the firsts won by the men who farmed under these conditions.

McAdam showed Britain how to drain its roads, and James Smith (1789–1850) of Deanston, north of Stirling in Perthshire, switched the art to agriculture, his treatise of 1836, *Remarks on thorough draining and deep ploughing*, being based on his experience of the last ten years. A Glasgow University boy, he became manager of a cotton mill at the age of 18, and interested himself in agriculture when it fell to him to pull round a water-logged farm. This is a perfect example of Sinclair’s cause (*b*)—the brains brought in from engineering.

At the time of the first Royal Show (Oxford, 1839), when British agriculture was on the verge of its golden age, two notable areas of agricultural implement-making were East Anglia (e.g., Ransomes of Ipswich, whose business dates back to 1789, and Garretts of Leiston, Suffolk, founded in 1839) and the Scottish Lowlands. And in the latter the pioneers were:

James Small, born 1740, to whose plough Sinclair devotes Appendix V. “In consequence of the great improvements made by James Small on this implement . . . , instead of two or more horses, together with two or more oxen, formerly used, and a driver, Lord Kames¹ had the satisfaction of seeing himself, scarcely a plough with more than two horses and the ploughman, in the lower part of Berwickshire; and he then prophesied what has since taken place, that the practice would become general.”

Patrick Bell, the inventor of the reaping machine. The son of an Angus farmer, a divinity student of St. Andrews and later a minister of religion, he was stimulated to his invention by James Smith’s experiments in this direction.

¹ Henry Home Lord Kames (1696–1782), author of *The Gentleman Farmer*, 1776: Boswell’s friend and Johnson’s critic. Hence, “Keep him; ha! ha! ha! We don’t envy you him.”

Bell's reaper of 1828 was a sort of mechanical scissors; indeed, the sight of a pair of garden shears sticking in his father's hedge gave him the idea. But he took out no patent in order that the implement might go out to the world free of any avoidable expense, and he did not gain the fame which fell to Cyrus McCormick, an American of the same generation, who in 1831 invented a reaper that seems to have been more practical than Bell's. More important probably was the fact that McCormick was supplying an agriculture that was long on land and short on labour; and the reaper was pre-eminently a labour-saving invention. In any event, it is an admirable example of the final item in Sinclair's cause (b), the lead given by the clergy.

Andrew Meikle (1719–1811), the millwright from near Dunbar, who in 1785 succeeded in producing a mechanical thresher which did the work of the hand flail: so that "by the end of the century shakers and fans had been embodied in a machine which was then able to separate the crop into grain, chaff and straw."¹ But the full invention was a threshing machine harnessed to steam power, and when Cobett visited East Lothian in 1832, he saw all round him the smoke stacks of threshing engines.

Thus all the fundamentals of arable farming had now been decisively improved: sowing and cultivation by the drill and horse-hoe of the Englishman Tull; ploughing by Small, reaping by Bell, threshing by Meikle. And carrying the whole was the improved drainage inaugurated by James Smith. It only remained to generalise the improvements, and the most important step in this direction technically was the light portable engine of the type that floated in Trevithick's brilliant brain. Such engines were in common use from about 1837, with Lincoln and Leeds engineers as prominent as those of Scotland; for it were foolish to convey the notion that Scotsmen won all the firsts. Even Scotsmen can't do that.²

But travel and teaching were no less important to the generalisation of improved practice. The Scots had always

¹ J. A. Scott Watson, *Great Farmers*, p. 48.

² We can claim, too, from south of the border John Read, the inventor of the stomach pump and the hollow tile drain—a pretty pair,

been great travellers and observers, picking up every tip worth having; and they gave of their knowledge in return. George Hope of Fenton Barnes in East Lothian (1812-76) was Scotland's Coke cum Bennet Lawes, and incidentally he was the free trader who won the Anti-Corn Law League's Prize Essay of 1842. He kept a farm full of students all the years from 1841 to 1870, and they came from all over Britain, from Denmark, Sweden and many other countries. Prominent in prosperity, especially when there was money going—they went deep into the Land Drainage Loans granted by the legislation of 1840 *et seq.* (see Tooke, *History of Prices*, V, 185-190)—the Scots were devastating in depression. They came to London to sell their cattle, and seeing stayed—to make a profit out of Essex clays which would have ruined an English tenant. But by paring the labour bill and laying ploughland down to grass, they more than made ends meet.

My last new knowledge on agriculture is from the greatly improved *Journal of the Royal Agricultural Society of England* Vol. 100, Pt. 2, 1939. It opens with an illustrated article on famous potato raisers. England starts off with John Howard, the prison reformer, and is represented again in Robert Fenn, a dear old Suffolk patriarch, who started life as a watchmaker's apprentice. After the '45 (the disease, not the rebellion!) Scottish potatoes came to the front, tuber upon tuber: William Paterson's "Victoria," Archibald Finlay's "The Bruce," "British Queen" and "Majestic," James Henry's "Kerr's Pink," Donald Mackelvie's "Arran Pink," John Watson's "Doon Star," which last we are in duty bound to remember as we nibble our potato crisp. In retrospect, it is rather curious that small as the rôle of English potato raisers was beside that of Scottish, one of them, the ex-apprentice Fenn, produced the "International Kidney," which for 50 years was the principal potato of Jersey. But correspondingly James Henry took with him his Scottish lore to Canada, where, I gather, he lives still.

CHAPTER XVI

FOOD AND FOOD PRODUCTION IN PEACE AND WAR

Mr. Keynes holds strongly that while some questions take pages to answer, others may be answered in half-a-dozen lines; and I agree. Therefore, as my opening paragraph, I give the answer to a question recently set:

Why was 11th November so important a day in the rural almanack of our forefathers?

Answer: 11th November is Saint Martin's day; and this in old times was the occasion of the Martinmas salting,¹ when beef and pig meat was salted down for winter use. For the shortage of winter feed was then so acute that only a few could be kept over the winter; and of these, perforce, the plough beasts and breeding stock had to come first. The salted meat created a thirst for spices, and this took England to the East and into empire.

For the state of the food supply at the close of the eighteenth century we have a classic authority in F. M. Eden's *State of the Poor*, 1st edition, 1797. The abbreviated edition by A. G. L. Rogers (Routledge, 1928) is serviceable, and was obtainable in remainder (1939) for 5s.

Charles Smith (whom Adam Smith commends and Eden uses), writing in 1764, calculated that out of the 6 millions of population in England and Wales, $3\frac{3}{4}$ consumed wheat. Rye bread and barley bread competed with wheat in the Midlands and were consumed almost solely in Wales. By Eden's time the inurement to wheat had gone further, but Scotland remained faithful to its oatmeal called "crowdie" and the northern counties of England enjoyed their "frumenty" of barley and milk. Lancashire, whose food history is closely associated with Ireland, was addicted to potatoes "produced in much greater perfection in Lancashire than in other parts of England, so men say." The loaves of barley, rye and oats, which were very common in the North of England, were despised, Eden tells us, in the Midlands and

¹ Letter 37 of Gilbert White's *Natural History of Selborne* tells us about it in language that is a joy to read.

South. The labourers of Nottinghamshire ate rye bread under protest: "they have lost their rye teeth, as they express it." In Kent and Sussex they had grown so luxurious that they thought brown bread "purgative and relaxing." And he gives other interesting distinctions of drink and dress, and in particular, that as a measure of cider capacity the Severn man's stomach held 2 gallons and 3 pints. In the South fuel was so dear (timber all gone and pit coal far away) that the week's joint was sent to the bakehouse to be cooked there and lose its juice.

1797 saw the intensification of the war with France; and a battle royal was waging also over Standard Wholemeal Bread, which Parliament commended for its healthfulness and economy, and the people disliked for its colour and taste. The paupers demanded white wheaten bread almost as a birthright—an impudence which distressed every publicist from Arthur Young to Nassau Senior. Soup and soup kitchens had a like reception, and fish was only less unpopular, even though Parliament was ready to organise a wartime service of ropes, boats, nets, salt and fishermen.

1800 was a year both of war and harvest failure, when England was close to famine. And everything short of rationing was done to conserve and increase the food supply. Hairpowder, in which grain was used, was heavily taxed. Distillation of grain was prohibited in proclaimed areas, the Government, incidentally, having an interest in lessening the stocks of colonial sugar (a rival raw material of spirit) which were piling up in London. It was forbidden to eat new bread, and in 1800, as in 1795, another scarcity year, self-denial was urged upon the people from bench and pulpit. Corn imports were encouraged by import bounties, and the promoter of any and every Enclosure Act was a public friend. The soil of England responded superbly, and it is for this reason that we say of Coke of Holkham that he saved England by a ploughshare, when the sword would have availed nothing. The war, however, was the war of a whole generation; and for all its seriousness did not make so heavy an inroad on the labour resources of the country that labour had to be controlled and allotted to different purposes, as in 1917-18.

Pass on a century and more to the year when Lord Ernle (R. E. Prothero) became Minister of Agriculture and Fisheries: namely, December, 1916. He tells us about it in his *Whippingham to Westminster* (1938); and from this and his volume of Addresses, *The Land and its People* (1924), I compile the story of the Food Production Campaign of 1916-18.

The fact which the England of 1915 had to face was that since 1870 the tillage of England and Wales had declined by $3\frac{3}{4}$ million acres. But the plough-up policy at first met with resistance from unteachable free traders, from landowners jealous of their permanent grass and from the 400,000 farmers who constituted the entrepreneurship of British farming. The question which these last asked was, "on what terms?" For "business as usual" was still in charge, and as late as August, 1916, the Milner Committee's proposal of a guaranteed price for wheat was unacceptable to those in authority. But in the winter of 1916 the submarine menace deepened; North America had had a small crop: Australia was inaccessible: and the United Kingdom yield of cereals was 261,000 tons down on the pre-war average. These facts, and two important publications, T. H. Middleton's (not the B.B.C. horticultural Middleton of 1939!) *Recent Development of German Agriculture* (1916), and the Royal Society's estimate of home-produced foodstuffs,¹ converted the Government and the country to a frame of mind which gave Ernle his chance. The problem, as Ernle viewed it, was this: labour was short, the import of fertiliser had been heavily cut (through shortage of tonnage) and above all agriculture's factors of production were in numerous hands. The War Office controlled military labour (on temporary loan) and internees: it also commandeered hay and oats. The Ministry of National Service controlled civilian labour. Implements and fertilisers came under the Ministry of Munitions, petrol under the Petrol Committee: wheat under the Grain Commission, milling under the Food Controller, and so on. Control, control, control; and the only way of countering it was yet one authority more—a body to

¹ Cf. J. A. Venn, *Foundations of Agricultural Economics* (1933 edition), p. 481.

represent agriculture as a producing agent. This was provided by the Food Production Department of 1917 and then things moved. Labour was secured in the form of War Office releases, old age pensioners, aliens, "conchies," public school boys and the women's land army. Many of us remember the incidents as vividly as yesterday—the switch from flowers and bulbs to vegetables: the allotments for spare-time work, provided by local authorities, landlords and railways: the pig sty of the back garden: the digging up of tennis lawns. But the thorny problem was the use of compulsion to increase the acreage under corn. The Corn Production Act of 1917 provided minimum prices for growers: minimum wages for labourers: no rent raising: and the control of cultivation in the national interest. Ernle emphasises the point that the compulsory clauses protected tenants from liability under covenants of cultivation and from claims for delapidation, and it is clear that his success lay in the fact that from long study and business experience (he had been the Duke of Bedford's agent), he understood the farmer's and landlord's point of view. He allowed no farming from Whitehall.

Lord Ernle died 1st July, 1937, before his story was completed, and Sir Daniel Hall has completed it for him. The harvest weather of 1918 was unpropitious, but the campaign had added three million acres to the plough. In 1918, as compared with 1916, the acreage of the United Kingdom under wheat was up by 645,000, and that under potatoes by 206,000. Depleted of labour and short of fertiliser, the soil of England and Wales yielded in 1918 35 per cent. more of corn and 59 per cent. more of potatoes than for the average of 1904-13.

Dr. Venn was statistician to the Food Production Department, 1917-19; and therefore the chapters on "British Agriculture in Peace and War" in his *Foundations of Agricultural Economics* are authoritative. A study of these has fixed in my mind as their central conclusion this:—that a home supply of 10 weeks in 1914 had been raised to one of 18 weeks in 1918, and that this home supply could have been raised in the year following to, perhaps, 40 weeks by strict rationing and some reduction of grade. I remember

smiling greatly when a pundit of Canadian finance said, in a discussion which I had introduced at Toronto, "The Old Country's wheat production we can neglect." My subject was "The Agricultural Surplus," and the academic year 1927-8.

One part of the story remains to be told, but I refuse to tell it, for it would be to ruin a delicious morsel. I will merely whet your appetite with two quotations from Ernle's *Land and Its People*, Ch. 7. At the peak of its numbers, September, 1918, the women's land army reached 320,000 (part and whole time) workers: and of these in retrospect he writes:—

Experience shows that there are particular branches of agriculture for which women have special aptitudes. First among these are the handling of livestock, and, above all, dairying and the rearing of young animals. In dealing with horses their light hands compensate for any want of strength. They excel in milking and dairy work, and the standard of cleanliness which they have introduced is a valuable asset. A woman's secret with animals seems to be that to her they are not machines but individuals: in intercourse with dumb creatures she has found companionship; even a sow is a "Jezebel" or an "Isabel" according to character and behaviour. In the lighter branches of fieldwork and of forestry women have done admirable work. On market gardens their services have been invaluable. In thatching, which was fast becoming a rare agricultural art, they have proved most proficient; the light muslin mask which they introduced as a protection against the dust is but one instance out of many of the intelligence which they have generally brought to bear on the industry. In driving motor-tractors they have done at least as well as men. Here also light hands tell. As drivers they have shown themselves not only skilful and enduring, but economical.

The second piece is more tasty still.

Here, for instance, is the record of a Land Army Girl who swam a rapidly rising river, roped a cow standing half-submerged on an island, and brought her across the stream to the bank; here is another who, hanging on to the fence with one hand, saved, one by one, a litter of small pigs from drowning in a half-frozen pond; here is a third who, wheeling a barrow along a road, met two riderless, runaway horses; by putting her barrow across the road, she checked one, seized its reins, scrambled on its back, and caught and held the other. Here is the case of a Land Army Girl who, when a cow

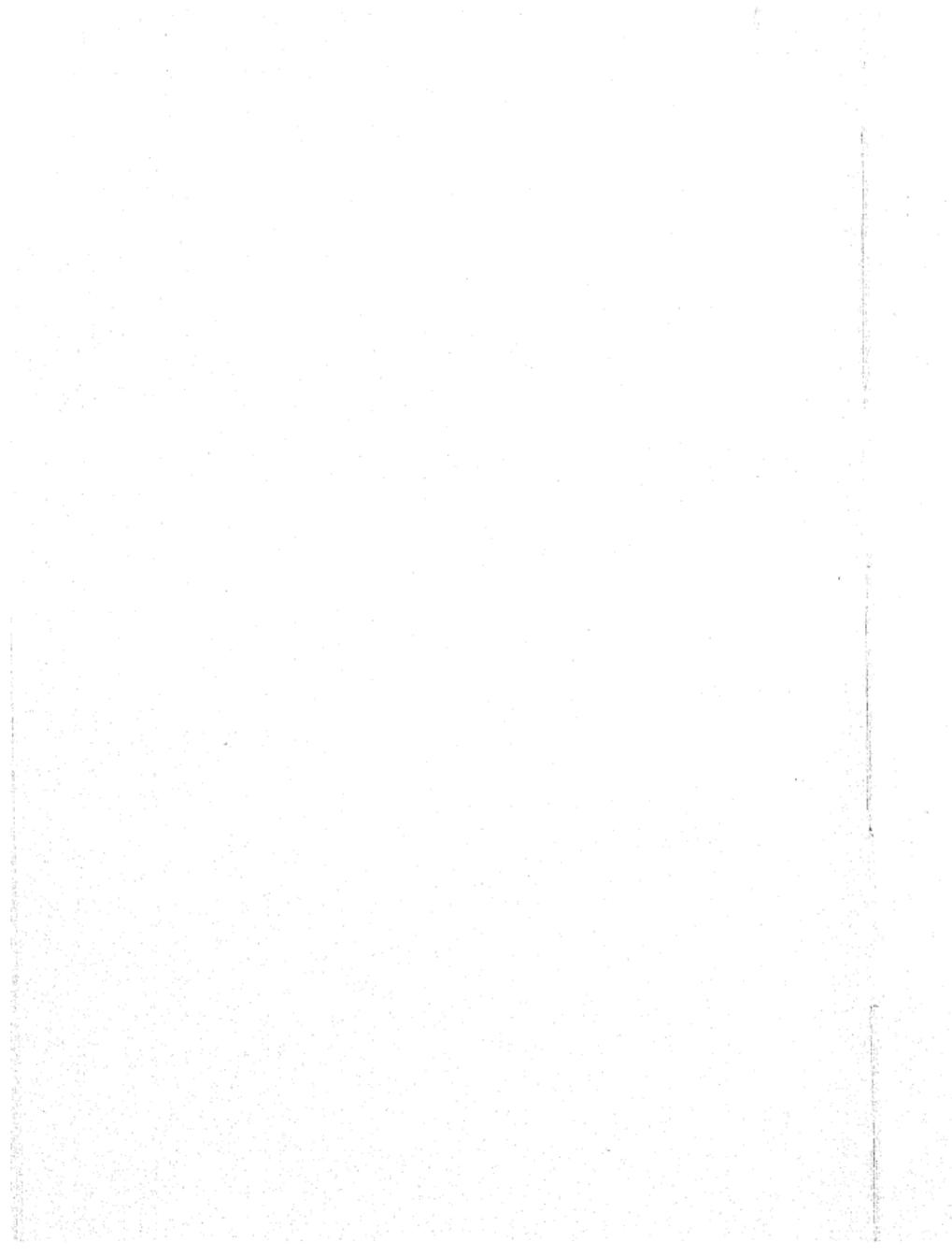
mad with pain after calving was killing her calf, and when none of the men would go near her, went into the box, pacified the maddened animal and saved the calf. Here is another case. A man entered the box of a bull in order to put on its chain, he was knocked down and the bull was beginning to gore him, but a Land Army Girl, climbing the barrier, kicked the bull so violently on the nose that the animal backed, giving the man time to rise; and, as a result, both escaped. The story ended in romance; I hope both will be "happy ever afterwards."

Postscript. *Feeding the People in War-Time* by Sir John Orr and David Lubbock (1940) brings us back from food production to food. It supplies agriculture with a policy based on food values, a subject which has occupied medical science increasingly since 1918. Its motto may be said to consist in the sentence on p. 2.

With sufficient milk, vegetables and potatoes, there need be no malnutrition. With sufficient bread, fat (butter or margarine), potatoes and oatmeal there will be no starvation.

Part III

TRADE AND INDUSTRY



CHAPTER XVII

PERIODS IN INDUSTRY AND TRANSPORT

We have examined already the subject of Stages in Economic History. In this lecture I deal with periods of convenience, which make no claim to genetic value and are designed simply as an aid to memory.

Period I. 1700-1815, Cotton and Canals.

Period II. 1815-1855, Coal and Railways.

Period III. 1855-1900, Steel and Steamships.

Period IV. 1900 to date, Rubber and Oil, Electricity and the Automobile.

The precise dating is of no great consequence. But 1700, the first year of the century, happens to be the year in which the vested interests of wool and silk unintentionally gave a fillip to the young cotton industry by prohibiting the importation and use of Indian cottons and exempting Lancashire from the ban. Part I extends naturally over the Napoleonic wars to the peace of 1815, when the situation was radically different from that of 1793. For not only had war intensified the progress of industrialism greatly, but in 1813, for reasons only remotely connected with war, the monopoly of the East India Company terminated and the merchants of Lancashire were enfranchised. London then for all its brilliant engineers, its Maudslays, its Galloways and its Brunels, lost industrial sovereignty to the north, to Lancashire and Yorkshire and to Clydeside. The Lancashire of Arkwright, Oldknow and the Peels was more dynamic and more symptomatic of the nineteenth century than the dockless Thames of 1800 or the Black Country with its curious combination of big producers and numerous little "trades." Wedgwood and Boulton were the smaller half of the Midland scene.

I extend Period II to 1855, because by that year the great decade of railway construction was nearing completion, so that the railway map of England had all but assumed in essentials its present form. 1855, moreover, stops short of

the age of steel, because Bessemer's invention, which introduced it, was in 1856. If one were thinking of periods in terms of fiscal policy, it would be natural to carry this second period to 1860, when the commercial treaty with France marked the completion of free trade. I end Period III at 1900, not only because it opens a new century, but also because at that time plantation rubber began to be important and the automobile was emerging from its chrysalis stage. The South African War of 1899-1902, costly though it was in money and men, was not big enough to dominate the economic life of the nation. Period IV concludes with the changing present, which is again a period of world war; and we may conjecture that Period V, when it comes, will give first place among communications to the air.

The nomenclature of each period is meant to indicate the commodity and method of transport which are setting the industrial pace. Cotton seems entitled to this distinction in Period I, not only because of its leadership in technique, but because of its profound influence on empire trade and the structure of domestic society. The textile industries and not the metal industries were the birthplace of factory life, and it was cotton and not wool which captured for Great Britain the textile market of the East. As Norfolk was to agriculture, so Lancashire was to manufacture between 1760 and 1830. Road transport improved as much as water transport, but canals were more significant to the Industrial Revolution than turnpikes, because they carried its heavy products. They were nevertheless its unluckiest investment, for they were too soon, too many and too narrow. To-day the loneliest spot in all England is the towing-path of a canal which is just not derelict, and if the thorns were removed it would be a cyclist's paradise. For canals, like cyclists, avoid gradients where they can, and their course is winding.

In Period II coal and railways go hand in hand. The locomotive was coal-fired and the first of them hauled coal waggons. The Stephensons, George and Robert, were coal and railway men from first to last; and they, with George Hudson the railway king, C. M. Palmer the ship-builder and W. G. Armstrong the engineer, turned the north-east coast

into a stronghold of modern industry. Moreover, in the 1840's the working conditions in coal mines excited even more national concern than those in textile factories. No doubt a historian like Professor Nef might protest that coal was of fundamental consequence to the development of English industry all the way from the age of Elizabeth. I merely suggest that it was less distinctively so before the age of railways; and it is not to be disputed that in Scotland railways came very close on the heels of her early industrialism, though it was the making of iron for railways rather than railway traffic which advantaged Scotland the more. The export of coal from Great Britain did not possess before 1855 an economic or strategic importance of any magnitude. This came only with the generalisation of the steamship and industrialism overseas.

Part III is the age of steel, when Middlesborough, Sheffield and Swansea boomed—Middlesborough an estuary village in the census of 1841, with its rich hinterland of Cleveland iron ore still undiscovered; Sheffield, where John Brown at his new Atlas works took up in 1860 the manufacture of Bessemer steel: Swansea, back of which, at Landore, Sir William Siemens set up his large sample steel works a decade later. Thanks to steel and the brilliant use made of it by the Navy and the Mercantile Marine, Great Britain enjoyed a further period of industrial leadership, and if the 1880's saw a "great depression" it was a depression caused primarily by the prolific output of steel-makers at home and overseas. The notion that Great Britain somewhere in the '70's was hard pressed for investment capital will not bear examination. Furthermore, from 1855 to 1900 the real wages of English labour rose markedly and almost continuously.¹

Period IV is the period of rubber and oil, which infects the atmosphere of the twentieth century literally as well as metaphorically. They gave a new value to overseas empire and spheres of influence—witness the rubber of Ceylon and Malaya and the oil of Burma, Iraq and Iran. It is also the age of electricity, which advanced from telegraphy and

¹ As regards the fortunes of the iron and steel industry itself, I defer entirely to the views expressed by Mr. Burn in Appendix I.

lighting to the generation of power for industry. In Canada hydro-electric power set the industrial pace, but in Great Britain electrification has been a process of gradual permeation rather than of taking by storm, and the generating material is coal, as before, and not the white fuel of falling water.

The modern era of transport is marked by the petrol-driven automobile and the electrified railway or trolley car. Tram lines are being scrapped daily, and the age of the aeroplane has dawned. A distinctive feature of electricity is that current is supplied from a central station on grids which lace the countryside. The fuel itself does not travel to the consumer, and this may be expected to have important consequences for the future distribution of the industrial population. On balance it favours a greater dispersion than heretofore.

I have included rubber in Period IV with oil and the automobile, and it is fascinating to look at the evolution of the last hundred years from the angle of the rubber industry. Procured originally by the French from Brazil, it was used by them in the eighteenth century for sport and medicine in the form of rubber-cored balls and catheter tubes. Mercantile England used it for the erasing of pencil marks—hence its name in English. In the early nineteenth century the manufacture of gas yielded as a bye-product naphtha, and in the 1820's Charles Mackintosh used it on rubber for the proofing of the clothing named after him. He was the second in the field. The first was a Londoner, Thomas Hancock, who subsequently amalgamated with Mackintosh. He was a coach-maker by trade, and it is thought that he had in mind the making of waterproof clothing for the outside passengers of stage coaches. But his patent of 1820 specified a variety of clothing—garters, braces, elastic-sided boots and the like. The new product caught on and found further outlets in connection with driving belts, carding machines, billiard cushions, lifebelts, beer-engine tubing, fire-hose, etc. In 1826 the Norwich Union Insurance Company substituted rubber for leather in their engines (for in those days it was left to the insurance companies to extinguish the fires on the premises which they had insured). By 1839 most of the

now standard processes in the manufacture of rubber had been discovered—the mill, the masticator, the use of compounding ingredients and the process of moulding. But there was still a fundamental difficulty—the tendency of rubber to become hard and stiff in the cold, and soft and adhesive under heat. This was solved by the discovery of vulcanisation, which involved the admixture of sulphur with rubber. The honour of the discovery belongs to an American, Nathaniel Hayward, 1839. Charles Goodyear helped him and took up his idea, and in England, Thomas Hancock, after experimenting on American samples, attained complete success from the immersion of thin strips of rubber in molten sulphur. His patent of November 1843, was just ahead of Goodyear's application for a patent in England. It covered hot vulcanisation in all its forms and must be considered the English master patent. The "cold cure" process of Alexander Parkes, a Birmingham electro-plate worker, 1846, completed the chapter of crucial inventions, and the way was now open for its great modern use on the rim of a vehicle.

As early as 1845 R. W. Thomson had taken out a patent for a solid tyre, and collaboration with machinists engaged on watchmaking and sewing machines yielded the "bone-shaker" of the 1860's. Thus two streams of invention coalesced—rubber production with its emphasis on chemistry and cycle production with its emphasis on mechanics; and out of the junction a greater thing at one remove was born. J. B. Dunlop, a veterinary surgeon of Belfast, in 1888, conceived the idea of inflating the tyre to lessen vibration; and the result was the pneumatic tyre and the Dunlop Rubber Company. The "clincher" and "welch" attachments of 1890 solved the problem of attaching the tyre in an easily detachable form to the wheel; and at this point, consequent upon the improvement of the internal combustion engine, came the automobile. By 1895 an early motor car was driven in the Bordeaux-Paris trials equipped with pneumatic tyres: to-day 75 per cent. of the world's rubber goes into the tyre industry. Until the day comes, if ever it does, when roads are laid with rubber, it is not easy to imagine a greater source of demand.

Now, just as Eli Whitney's cotton gin in conjunction with Arkwright's cotton machinery gave to the cotton industry cheapening output (increasing returns, that is to say), so also did plantation rubber in conjunction with the motor factory. This is the other half of the story and of special interest to Great Britain because the regions where the wild rubber of Brazil was acclimatised were within the British Empire. I have seen in Peradeniya Gardens, Ceylon, some of the original rubber trees raised from the *Hevea* seed sent out by Kew Gardens, which they had germinated from seed brought by W. H. Wickham from Brazil. It flowered in 1881, and was made available to planters c. 1890: in 1897-99 the nature of the wound response from the tapping of the tree was learnt: by 1900 the suitability of the Malayan mainland for rubber growing was established, and plantation rubber was launched on its sovereign career. Between 1850 and 1870 the imports of rubber into the United Kingdom rose from the tiny figure of 381 tons to the still tiny figure of 7,606. In 1900 world production was about 55,000 tons, practically all wild rubber. In 1913 it was over 100,000 tons, nearly half plantation rubber: in 1934 over one million tons, 600,000 being produced in the Empire and wild rubber accounting for no more than 14,000. The new importance of empire products (rubber, tea, tobacco, vegetable oils) is the substance underlying the transition in fiscal policy from free trade to imperial preference, and in this respect the twentieth century is closer to the eighteenth century with its emphasis on the East and West Indian trades than to the nineteenth century with its emphasis on iron and coal and their export to the world at large.

CHAPTER XVIII

RIVER, COAST AND OCEAN

T. S. Willan, *River Navigation in England* (1936).
T. S. Willan, *English Coasting Trade, 1600-1750* (1938).
C. E. Fayle, *Short History of the World's Shipping Industry* (1933).
E. C. Smith, *Short History of Naval and Marine Engineering* (1937).

Only by the aid of a physical map can one hope to understand inland transport. Seventeenth-century England was not ill-served with navigable waters, of which the most navigable were those around the coast. Nor was she devoid of good roads even before the great improvers. Given a fair chance, the unmetalled roads stood up to their work tolerably well. Their state depended on the elevation and the nature of the subsoil and rock. In the 1720's a foreign traveller observed that "it is not only on the Thames that you travel with enjoyment. . . . The high roads of England . . . are magnificent, being wide, smooth and well kept, rounded in the shape of an ass's back." But as the quoter of the passage continues, "It was for the carriage of heavy bulk goods such as coal and timber that the roads, even when turnpiked, showed their inadequacy."¹ Arthur Young did not tell the whole tale.

Next time you travel by the L.M.S. from Bletchley (that pleasant market town, where Maitland wanted to locate Girton because it was equidistant from Oxford and Cambridge and no mails stopped there, and where, surprisingly enough, Herbert Acroyd Stuart in the 1890's developed the heavy oil engine) to the railway junction of Crewe, mark well the flow of the streams. First you cross the Bedford Ouse, flowing east to its junction with the Cam at Ely and so to King's Lynn: next the Nen, also flowing east, which passes through Northampton (the stupid town which kept out the main line of the L. & N.W.). Then comes a tunnel, through which you steam into Rugby. The flow of water is now to the west; for Rugby is on the Warwick Avon, which later joins the Severn. But not for long. For when level

¹ *Historical Geography of England before 1800* (ed. H. C. Darby), p. 520.

with Birmingham, you cross a shallow height of land into Peel's Tamworth and Johnson's Lichfield; and all the way from Lichfield to Stafford you are in Upper Trent land on the western watershed of the great river which flows through Burton (beer) and Trent Bridge (cricket) into the Humber. This is the trunk line of England's natural waterways. Brindley negotiated the Weaver Hills to connect it by canal with Runcorn and the Mersey. Telford edged westward through Ellesmere to connect it with the Dee and the Wirral peninsula. And the Grand Junction Canal from the Midlands to Paddington completed the water cross. Formerly all roads had led to Coventry. Now the four great river outlets of England were available to Birmingham by a combination of river and canal—the Humber, the Mersey, the Severn and the Thames.

I draw so heavily on Mr. Willan's two books that I hope he will pardon a preliminary protest. For in the course of getting into his stride he writes, anent a passage on p. 240 of Mrs. Knowles' *Industrial and Commercial Revolutions in Great Britain during the Nineteenth Century*, thus:

The late Professor Knowles, in fixing her attention upon the Industrial Revolution and the extraordinary outburst of canal building which marked its early course, assumed that Great Britain had hitherto been dependent upon the turnpike road as the sole means of internal communication. "It was obvious," she wrote, "that Great Britain with her growing traffic and growing industry must improve the means of transport beyond that of the turnpikes."¹

This is stalking-horse criticism. The sentence quoted occurs in a section on roads in a book which is concerned with the nineteenth century, and reference to other works by Mrs. Knowles makes it obvious that she was fully alert to the significance of river navigation in Great Britain and other countries of Europe in the pre-canal age. Moreover, her book was published in 1921; and she could not but be aware of Professor Jackman's treatment of river improvement in his treatise of 1916, *Transportation in Modern England*.

In the seventeenth century England became water-conscious—of its excess more especially in the eastern lowlands, which Vermuyden and his Dutch engineers

¹ T. S. Willan, *River Navigation in England*, p. 3.

drained, 1620-56;¹ and of its deficiency or irregularity in other parts, such as the central plateau, on which lay Birmingham. The natural outlet of this region was the River Severn, which was navigable as far as Shrewsbury. From Shrewsbury the river flows south-east, and tapping the Midland trade at Stourport took it through Worcester and Tewkesbury to Gloucester and the Bristol Channel. Therefore, the free navigation of the Severn, firmly established at law, was a great commercial boon, without which the Abraham Darbys, I, II, and III, could not have put South-East Shropshire on the industrial map—South, because this way flowed the Severn; East, because here lay the coal of Coalbrookdale and round about.

The improvers had a good press: a water poet in John Taylor (1580-1653), and able pamphleteers in Andrew Yarranton (1616-84) and Nehemiah Grew (1641-1712). Grew was a scientist of Cambridge—a vegetable physiologist, the *D.N.B.* calls him, and he calculated the differential advantage of water over wheel at 1 to 12 and of water over pack at 1 to 16. Like so many of his age, he was a well-informed admirer of the Dutch. The instrument of improvement was the Improvement Commission. This body entrusted its work to contractors called "undertakers," or perhaps the members undertook it themselves; and their ranks were recruited from the local gentry and merchants. Thus the Mersey and Irwell Navigation consisted of two J.P.'s (one a Kenyon, the other a Mosley) and 33 Manchester merchants; and as was the case in 1821 with the railway, the urge came from the side of Manchester. Though the Commission was a public authority, its financial methods were capitalistic, and it circumvented the maximum statutory tolls by its ownership of the warehouses on the Navigation banks, for which it charged what it pleased. Its successors, the Turnpike Trusts and the Canal Companies, provided the framework in which Brindley, Telford and McAdam built up the profession of civil engineering. But Vermuyden the Dutchman was the first of them (he is No. 1 of Smiles' Lives), and John Smeaton, 1724-1792, is

¹ For which we now have Dr. H. C. Darby's duet: *The Medieval Fenland* and *The Drainage of the Fens*, both of 1940.

accounted "the father of the profession," after whom was named the Smeatonian Club of 1771.

Mr. Willan's second book is the complement of the first, and coal is the link between them. Coal was the leading article of river traffic, followed at a distance by the raw materials and products of agriculture and by timber; but with the diminution of woodland, the latter trade declined. *Per contra*, the output of coal grew more than proportionately and its carriage imperiously demanded the supplementation of rivers by canals, particularly in those areas where inland waters were non-navigable—as along the Pennines and on the Midland Plateau. For here lay much good coal.

Coal was even more the leading article of coastal traffic, and pit coal was called sea coal because it moved by sea from Newcastle to London. (There is a Sea Coal Lane in London near to Ludgate Circus.) Coastal waters, in addition to their immunity from flood and frost, did not require levelling by locks, and they escaped the many exactions which private property imposed on inland navigation. But they had their hindrances—storm and wreck, piracy and impressment, extortionate harbour dues and tolls. Nevertheless, the sea route was always cheaper than a combination of land and river carriage, and the contribution of coal to the aggregate of coastal traffic was greater than that of all the other minerals. It was big enough to require an elaborate organisation, one part of which has won great attention because of its place in the history of monopoly—the Newcastle Coal Vend; and it was the source of substantial profits to merchants, such as the Winstanley who perished at the wreck of the Eddystone Lighthouse in 1703, and the Quaker owners who ransomed their shipmasters from Dunkirk gaols in the seventeenth and eighteenth centuries. But for all that, it standing was not high. For in Defoe's England "none but such as carry on foreign correspondences were accounted merchants." And the coal export of that day was incidental.

We have reached the high seas from the river, and if in this mood we approached ocean trade, we should do a violence to history. We must now forget about the coastal trade, and even about King's Lynn, where the coal of Newcastle met the corn of East Anglia in true Amsterdam

fashion, and think of the coast not as a line of ports from which ships issued on their lawful occasions, but as an ill-guarded shore which received perhaps half its imports illicitly. Mr. Willan surely should have given us a chapter on smuggling. The atmosphere we can get from Sir Walter Scott, and there is much information in H. Atton and H. H. Holland, *The King's Customs* (1908); but it wants re-working, with such statistical detail as may be available, almost as much as the history of privateering. More, naturally, is known of its later days, when the Government was getting the mastery of it. After 1800 the smugglers had to rely more upon speed and less upon armament. The days were past when troops of horsemen armed to the teeth and loaded with contraband clattered along the by-roads of Kent and Sussex with produce for the London market. Swift sailing ships, therefore, carried sinkers on which their kegs could be sunk if the chase became hot, and when landed the goods had to be sent inland by stealth. Caves were dug around the coast in which they could be cache'd until they were sold and slipped away; or perhaps in yet more modern fashion they were concealed in innocent articles—cambric handkerchiefs in baskets of eggs and fruits, clocks in plaster ornaments, and so on.

When we come to the legitimate trade of the high seas, the task of narration is unusually hard, because in a way not easy to simplify the structure of ocean trade altered profoundly between 1750 and 1850. In the eighteenth century the scheme is the trade triangle—England, Africa, West Indies: England, Newfoundland, West Indies; or exceptionally the trunk line of that ponderous monopoly, the East India trade, which was partly company trade and partly private trade, vigorously monopolistic on the Thames and highly free in the Indian and China seas. By 1850 shippers and shipowners are quite distinct. The trade triangle has disappeared before the regular sailings of steamship lines, and a mass of tramp tonnage is beginning to move here and there under orders from London or Liverpool. By 1914, with the aid of the submarine cable, the embryo of 1850 was full grown; and new methods were in vogue, notably the special purpose ships, refrigerated meat vessels, oil

tankers and the like. A final jump takes us to modern times, and in particular to a fascinating map—B.R. 135 (H.M. Stationery Office, 1939: 3s. 6d.), showing the distribution of British Empire shipping of 3,000 tons gross and above, as of 4th November, 1937.

But it is fantastic at the tail of a lecture on rivers and coastal trade to try and present a worth-while picture of ocean shipping, and I commend to you the closing chapters of Mr. Fayle's History:—

- Ch. 9. "White Wings" and "Tin Kettles."
- Ch. 10. Liners and Tramps.
- Ch. 11. Competition and Combination.
- Ch. 12. The Shipping Industry to-day.

Those whose interest lies in technique will read with pleasure and profit the recent work of Engineer-Captain E. C. Smith on the *History of Naval and Marine Engineering*. It will make everyone at Cambridge realise what we may have lost when the Chair of Naval History was switched to Naval and Imperial History instead of to Naval and Maritime History; for this field of enterprise was pre-eminently British, and while other nations were drawing level with or passing us in the service of the land, we were leading in the service of the sea. Where once we had sailed the captured frigates of France, now we led the way in ironclads, destroyers and dreadnoughts, built war vessels for smaller countries and sold old mercantile tonnage to foreign flags. It is a story packed with personality, incident and broad lessons illuminating the history of a century.

Among great names perhaps the greatest are Robert Napier and his cousin David Napier, John Elder, Robert Whitehead and Charles Parsons. The Napiers and Elder (the Elder of compound-engine fame and founder of the Fairfield Shipbuilding and Engineering Co.) were of Glasgow, as also were Tod and MacGregor (the latter trained by Napier), who built the *City of Glasgow* (1850), the vessel which, in the service of the Inman Line, was the pioneer of the iron-hulled screw-driven Atlantic liner. Glasgow from the time of Watt had been distinguished for engineering. In the time of Robert Napier (1791–1876) and largely through him, it became pre-eminent in marine engineering.

But Thames shipbuilding died hard. For what Napier was to Glasgow, the Maudslays were to London. At their works the naval engineers learned the new mysteries. Sir William Fairbairn at Millwall launched about 100 iron vessels, but lost £100,000 in the undertaking. Brunel and Scott Russell built there the *Great Eastern*, 1854-8, the premature monster with paddles, screws and sails, which laid the Atlantic cable but never brought profit to her owners. Why did the Clyde oust the Thames, the historic Thames? Partly, no doubt, owing to the proximity of material and fuel, of the iron and coal that replaced the timber and flax imported from the Baltic. Partly also to the mechanical aptitude and educational equipment of Scotland. The Mechanics' Institutes had their birth in Glasgow, and W. J. M. Rankine (1820-72), Professor of Engineering in Glasgow University, was "the first really powerful thinker in this country to bring the highest mathematical resources to bear on engineering practice."¹

Legitimately enough in economic history we are always looking for two landmarks, one of definite origin, the other of full accomplishment. 1838, the opening of the Victorian era, saw the steamship on the ocean: on 4th April, 1838, New York gave a wild welcome to the *Sirius* and *Great Western*. 1869-71 saw the all-round victory of the steamship, and clearly pointed the way to greater triumphs to come in the fields of material and motive power. In 1869, the Suez Canal, suited only to the steamship, was opened. In 1870, Robert Whitehead (1823-1905), the Lancashire-born inventor of the torpedo, was bought out of the service of Austria by an Admiralty alive to the significance of his invention, and in the same year the last world voyage of a British squadron under sail was concluded, and a regretful farewell was said to wooden ships and sails and the old navy of Nelson's time. Already in November, 1869, the First Lord of the Admiralty had clinched the first rivet in the keel of H.M.S. *Devastation*, the first mastless turret ship and the prototype of all subsequent battleships. In 1871, Charles Parsons, the inventor of the turbine, entered Trinity College, Dublin. In the changes which followed the Admiralty was

¹ E. C. Smith, *op. cit.*, p. 173.

to the front as a teacher, a pioneer and a customer. To-day, though in time of peace we are apt to forget it, the British Admiralty is the largest steamship owner in the world.

Economists apply the term "multiplier" to the extra employment which comes to subsidiary trades from new employment in a main trade, and the same consideration applies to technique. In Captain Smith's book *Auxiliary Machinery* requires two chapters; and he prefaces them with a vivid quotation from a writer of 1877.

Every war vessel is now a steamer. . . . The main propelling engines are worked by steam, a separate steam engine starts and stops them; steam ventilates the monster, steam weighs the anchors, steam steers her, steam pumps her out if she leaks, steam loads the gun, steam trains it, steam elevates or depresses it. The ship is a steam being. . . .¹

The steam engine was adapted from its central task of driving the screw to feeding the boilers, to pumping water in the emergency of leakage or fire, to steering, to loading, and to numerous other purposes. Until mechanical steering was introduced, nearly 100 men had to be stationed at the wheel of a large vessel, and it took 1½ minutes to put the helm of a large ironclad over 25°. Similarly, electricity, employed first for searchlights (1876) to detect torpedo-releasing steam boats, was quickly adapted to the lighting of liner saloons, and when it was installed in the engine-room, the engineer for the first time could see his engines at work.

It is a commonplace to say that war speeds up the process of industrialism, but the inner core of this thought belongs to the technique of war itself. Guns and armament are engaged in a ceaseless duel, the one to penetrate, the other to resist. Armstrongs at Elswick, Newcastle-upon-Tyne, the great gun makers, were the complement of the ship builders of the Clyde and Tyneside. William George Armstrong, afterwards Lord Armstrong (1819-1900), after erecting a crane on Tyneside worked by pressure from the town mains, pioneered the hydraulic system of gun control; for the discharge of guns, like the driving of the ship, is an elaborate machine process. And, as all know, the torpedo

¹ E. C. Smith, *op. cit.*, p. 204.

is a machine within itself, which destroys itself in the process of destroying its victim.

The foundations of British primacy in shipbuilding were well and truly laid. The nineteenth century succeeded to the high traditions of the old seamanship and adapted to the sea the new medium of iron and steel. As Watt was to the steam engine, so was Henry Cort to the boiler and plate of the iron ship. In the words of Captain Smith, "It was the art of boiler making which led to the art of iron shipbuilding, and thus it came about that nearly all the early iron ships were constructed by mechanical engineers and not by established shipbuilders, and that nearly all of them were steam ships and not sailing ships."¹

It is fashionable to poke fun at government departments for their tardiness in accepting novelties and managing their affairs in a wise and businesslike way. But the record of the British Admiralty, from the days of the old Navy Board, when Sir Samuel Bentham, the brother of Jeremy, was Inspector General of Naval Works, to the present day, has been highly creditable. The Marine Department of the Board of Trade has provided safety, the Classification Societies, with Lloyd's Register *facile princeps*² have guaranteed quality, and the Admiralty for its own ships has been as progressive as the most progressive steamship lines of the Mercantile Marine. Recognising the value of Siemens steel for cruiser construction and the turbine engine for torpedo craft, it led the way in the adoption of both.

The keynote of technical change in shipbuilding is its ceaselessness. Hardly was the iron steamship fully established when the material was challenged by iron in the form of steel, which entered into shipbuilding through the boiler, the most suitable steel both for boilers and hull proving by experiment to be that made by the Siemens open-hearth process. This was in the 1870's. Later the triple and quadruple expansion engines were challenged by the turbine

¹ E. C. Smith, *op. cit.*, p. 95.

² See the *Annals of Lloyd's Register* (Centenary Edition of 1934), a magnificent volume, commemorating the Reconstitution of Lloyd's Register of Shipping, and valuable not only for its early history but also for the expert detail on the introduction of steel as a material and the development of special purpose ships.

(1894), for which its inventor formed the Parsons Marine Steam Turbine Co. of Wallsend-on-Tyne, and the turbine in its turn by the internal combustion engine of the motor ship. I conclude by giving figures relating to the engine types of British ships in recent years:

Date	Steam reciprocating engines	Steam turbines	Internal combustion engines
1922-3	51	8	1½
1936-7	42	9	12

In million tons of gross tonnage

CHAPTER XIX

ENDEAVOUR AND RESOLUTION

From 26th August, 1768, when the *Endeavour* left Southampton, to 14th February, 1779, when he went ashore from the *Resolution* to be murdered by the natives of Hawaii, Captain James Cook was engaged in ceaseless war. But it was war of a peculiar kind—not against white men or defenceless natives (with whom until the last fatal accident he was usually on good terms in spite of their passion for thieving) but against the impersonal enemy of disease. At last we have a life which is worthy of the man and his purpose.¹ It is by Surgeon Rear-Admiral John Reid Muir (1939) under the title *Life and Achievements of Captain James Cook*; and of Cook's four titles to fame—explorer, navigator, surveyor and physician—the last is not the least. At any rate it is the continuous thread in this biography, and without doubt Cook himself lavished more anxious care on this than on any other side of his work. He was a physician preventing disease rather than a surgeon healing wounds.

Not until I read this life was I aware that this great sailor, the son of an agricultural labourer of North Yorkshire, was a Scotsman at one remove, and I fear that we are only entitled to say that Yorkshire made Cook in the sense that Shropshire made Telford. But deriving from his Scottish ancestry that admirable schooling and attitude to learning, which surely has done more for Scotland than any other force, human or material, he took his qualities to the port of Whitby and learned seamanship in that severe nursery of seamen, the colliery trade of the North Sea. The waters along the eastern coast of England were Cook's university, where he found a curriculum broader than the broadest curriculum of Edinburgh.

Cook was a Fellow of the Royal Society in an age when science and enterprise were fruitfully close. Victorian

¹ A second comes hard on its heels, Mr. H. Carrington's *Life of Captain Cook* (1939), which is distinguished by the goodness of its plates, maps and index, as well as by the clarity of its narrative.

biography had the feeble habit of making its heroes triumph by self-help over hardship and hostile environment, and such language has been used of Cook, but without foundation. For the owner whom he served at Whitby was capable and generous, and he worked his way up under superiors who quickly realised his ability. In the North Sea he learnt navigation, in the St. Lawrence and around Newfoundland, surveying; and many as are the good scholars which have come from Dalhousie University, there can never have been a more serious student than the navigator who pored in Halifax over Euclid and charts in his rare moments of rest. His genius was painstaking. No long distance voyager of the 1760's could forget the tragic events of Lord Anson's world voyage of 1741-4, when all but a handful of the crews perished from disease. But to a student like Cook there was available also the written teaching of the great physician who had investigated the cause of the slaughter and indicated its cure. For in 1753 Dr. James Lind had published his *Treatise of the Scurvy*.

Scurvy was not the only trouble which seamen had to encounter. It was merely the most formidable. There was a wide range of disorders consequent upon bad diet, bad ventilation, extremes of heat and cold, as well as the risk of epidemic and accident. Cook faced all these dangers, having always as his purpose the discharge of the manifold duties entrusted to him with the minimum loss of human life. In result the losses from all causes were notably small by contrast with the average of his time.

Incidentally the limejuice of the lime was of no use as an anti-scorbutic. It was the citrus fruit, the orange and lemon, which had the required property of correcting a deficiency in what we now call vitamin C. As early as 1601 the East India Company issued oranges and lemons for this purpose, but it appears that the naval authorities of the eighteenth century substituted for reasons of petty economy or ignorance the almost useless lime, which in the West Indies was confused with the lemon. There are many other articles which help to keep off the scurvy, as Cook by experiment found. When he passed a port of call or reached new land, his first act was to take on board pure water and foods

containing the needed vitamins—fresh meat, wild celery, spruce, cabbage for sauerkraut, raw onions. He died in 1779, and there is no reason to believe that he ever met Robert Bakewell. But in the history of diet Bakewell is the successor to Cook: for by his improvements in the art of breeding he made possible a winter supply of fresh meat, and his contemporaries by improvements of cultivation extended the range of fresh vegetables and nutritious roots.

If we think in terms of the land, it is hard to resist the feeling that the nineteenth century witnessed an increase in the callousness with which working people were treated, but it is certain that the rigours and cruelties of sea life in the eighteenth century, alike in the Royal Navy and Mercantile Marine, inflicted suffering even greater. The slave trade becomes, not indeed more excusable, but more comprehensible, if we remember the life led by the crews which manned the slave ships. And there is nothing even in the eviction of Irish tenants and Scottish crofters to compare with the ruthlessness of the press gangs of Napoleon's England. Yet for all that, these sweepings of humanity, fed on provisions which either were positively bad or contained the minimum of nutrition, furnished a trading and fighting service which was incomparably the finest in the world. It was men like Cook and Nelson, endued with sympathy and the power to command, who achieved the seemingly impossible. They were stern commanders, yet their men worshipped them; for they cared for their health and safety, and the discipline was a means to that end. Very often Cook had to force the correct diet upon his crews, although when the opportunity offered he took the milder way of making the men want it by seeing their officers eating and benefiting from it.

An epigram of a recent vintage says that the British Empire is one on which the sun sets at approximately the same hour the year round. The purpose is to remind us of the imperial importance of the tropics. Yet we do well to remember that Cook graduated among the ice floes of Newfoundland and after discovering New Zealand proved that there was no great balancing continent in the Antarctic. When the American colonies were asserting their independence, Cook was taking the British flag all the way

from Australasia to Vancouver; and the trading post which was established at Nootka Sound, as the result of his call there in April, 1778, was considered by Pitt to be worth risking a war with Spain in 1789. Marx was a German and *Das Kapital* shows it, for the German is a continental and has had but little experience of the conditions prevailing in the life of a ship, with its strange admixture of discipline and affection. The morale of the Navy and Mercantile Marine defies the stilted logic of Marxian rebellion. *Endeavour* and *Resolution* had as sister ships *Adventure* and *Discovery*. Metaphorically they were the big four of the second British Empire; and some examples of what they accomplished overseas may not be out of place.

The record, indeed, is not without its seamy side. For among the fundamental concepts of political science is that of a quality and its perversion, and it is found in economic history also. Few students of Tudor and early Stuart England can fail to admire the great Elizabethan codes of wage regulation and apprenticeship, but as we follow them into the eighteenth century, they degenerate either into *non agenda* or appanages of poor relief. And similarly in the external field, save that here the qualities and perversions were coeval and the latter were finally suppressed.

<i>Quality</i>	Exploration	Trade	Colonisation
<i>Perversion</i>	Exploitation	Piracy	Penal Settlement

Of piracy the Government was never openly guilty, but to the end it was unrepentant of the evil of penal settlement, for which it alone was responsible. Exploration and trade it supported keenly, and England as an island power exploited little and pirated much. Aggressive trading, a chastened form of piracy, was the keynote of mercantilism in action, but in this England suffered from two defects. Her ships, strangely enough, were inferior to those of Europe and Asia, and her typical products, until she acclimatised Indian cottons, were unwanted in the tropics, the most lucrative theatre of trade. What she had for export was enterprise and courage. Mr. C. N. Parkinson develops this thought with reference to *Trade in the Eastern Seas* (1793-1813), and shows convincingly that the material and equipment of the

India-built marine of that day were superior to the home product.¹ It was in organisation, adventure and seamanship that England excelled. English captains preferred to sail under English owners, who incidentally had the protection of a convoy system in an all but general age of war, and in its latter days Indian shipping was actually built to look like English, in order to enjoy the prestige of the English flag.

In 1815 that prestige was enormous, but there still remained one task, the destruction of the pirate dens in the Turkish States of Barbary, as the coast of North Africa then was called, and Edward Pellew, Viscount Exmouth, was given the job. It was a curious situation, because England, as a Protestant country, had few friends in the Mediterranean and the Dey of Algiers was a long standing ally. From them we had often obtained water and provisions, but their friendship was arbitrary and embarrassing, for they plundered all and sundry. They could be brushed off like flies, but like flies they returned. The only way to suppress them was to take their nest. One would have thought that a generation so war-weary as that of 1815 would have hesitated to embark on yet further warfare. But zeal for the suppression of the slave trade overrode other considerations, and Pellew was despatched in 1816 to ransom the Christian slaves from the hands of the pirates. When the Dey found that this was the purpose of the expedition, he cut up rough; for slaving was a much prized trade and slaves a valuable property. The taking of Algiers was no easy task, because the citadel was well fortified and the concrete roofs of the houses could not be destroyed by fire. But a well-planned attack, in which a line of battleships developed their full fire power, reduced the Dey to submission; and thus the seal was set in the Mediterranean on Trafalgar and Aboukir Bay.

Though Cook had left no new continents to discover, it remained for the next century to penetrate the hinterland, and the task which captured the imagination of England was the exploration of Central Africa, the most unknown of the continents and the strongest in biblical appeal.

¹ A note by him on Marshall and Dutch shipbuilding (*Industry and Trade*, p. 678) would be welcome.

Moreover, it was a breeding ground of slavery, and this fact caused liberal and religious men to support what otherwise they might have condemned as aggrandisement. Between 1815 and 1870 Great Britain was engaged in reaping the fruits of Trafalgar and Waterloo. It was not done in the name of Empire, but none the less it was an epoch of imperial consolidation and expansion alike in Australia, India and the Further Indies. The record of this accomplishment belongs to the history of the several parts, but there is one area, the African side of the Indian Ocean, which, though it enters little into economic history, unites the India of Clive and Warren Hastings with the Africa of Livingstone and Rhodes. Let us note briefly what was happening there at this time.

Mauritius, named by a Dutch Admiral after the Stadholder, Maurice of Nassau, was called by the French, when they got possession of it, Ile de France, and the adjacent island Ile de Bourbon. They lay on the route from the Cape to India. Mauritius was occupied by England in 1810 and remained English, but the Ile de Bourbon was returned to France and took the name of Réunion. Between them and Africa lay the land mass of Madagascar, an island larger than modern France, and its status was vague. Technically it was independent and remained so until towards the end of the nineteenth century it was subdued by Gallieni, the defender of Paris in the Great War, assisted by Lyautey, known to fame as the maker of Morocco. It was proclaimed a French colony in 1896; and England, having her hands full in Egypt and the Sudan, did not protest.

Mauritius was a sugar island, but vital though this was to the island itself, England's interest in it was strategic and humanitarian rather than economic. Its first Governor, Robert Townsend Farquhar was as enthusiastically liberal as Raffles, the founder of Singapore; and just as Raffles for a time held and reformed Java, so Farquhar sought to bring under British control Madagascar, from which for generations slaves had been shipped to the African mainland. The Protestant missions backed Farquhar, and a section of the British public, indignant at the persecution of the missionaries by the sadistic queen, Ranavalona the Cruel, tried

to found a Madagascar Company, on the lines of the later East African Company, but not even Palmerston would support it and Madagascar was left in store for France.

The rest of the story belongs to the mainland and cannot be narrated here, but even though Rhodes and the Rand are of outstanding significance in the history of Great Britain and South Africa, yet it is dangerous to draw the conclusion that trade and capitalism always set the pace. They were the middle part and the end of the story rather than the beginning. The beginning belongs to the sailors, the diplomats, the missionaries and explorers: to sailors like Mungo Park who explored the source of the Niger, to diplomats like Sir John Kirk, who loyally served two masters, England and the Sultan of Zanzibar and thereby made Kenya Colony possible, to missionaries like the mill-hand David Livingstone who died at old Chitamba in what we now call Northern Rhodesia, 1873, to explorers travelling for exploration's sake, James Bruce, Alexander Laing, Hugh Clapperton, Joseph Thomson, Samuel Baker, H. M. Stanley, Verney Lovett Cameron and many another. Traders were active the while around the coast; but although in the sequence of trade the great Chartered Companies, like the Niger, the British East African and the British South African, crowned the work of these, the foundations were laid by men whose first purpose was other than economic. *Endeavour* and *Resolution*, with *Adventure* and *Discovery*, took economics in their stride.

CHAPTER XX

THE DEMAND SIDE OF THE INDUSTRIAL REVOLUTION*

Scholars are constantly engaged on some phase of the Industrial Revolution, and we may enumerate half a dozen of these:—(1) the general story embracing both technology and its reaction upon life and labour, as in Toynbee, Mantoux, Knowles and Clapham; or a section of this reaction as in the trilogy of the Hammonds, *The Agricultural Labourer*, *The Town Labourer*, *The Skilled Labourer*: (2) by way of retort to these, the rather unfruitful course of disputing that the Industrial Revolution was truly such—unfruitful, because these critics will not tell us what their criterion of revolution is. It appears to be something which breaks out without preparation in a particular year and differs *in toto* from what has gone before. Stated in these terms, there is not, nor can be, any such thing as an Industrial Revolution:¹ (3) the personalities of the Industrial Revolution, a field in which the Manchester School of Economic History is very strong, and in which Mr. H. W. Dickinson for Messrs. Babcock and Wilcox has recently produced a notable engineering quartet—Trevithick, Fulton, Watt, Boulton: (4) the financing of the Industrial Revolution, as adumbrated by H. Heaton in the Bulletin of the Business Historical Society (Boston, Mass., February, 1937). This short essay supplies the link between W. R. Scott's *Joint Stock Companies to 1720* and studies such as B. C. Hunt's *Development of the Business Corporation in England, 1800–1867* (Harvard, 1936). For Lancashire the *locus classicus* will surely be Chapter VIII ("The Medium of Exchange") of T. S. Ashton's *Eighteenth-century Industrialist* (1939): (5) the relation of the classical political economy, the coeval and complement of industrialism, to its factual background, as in the Birkbeck Centenary Lecture of Sir William Ashley (1924), "Evolutionary Economics"—a distinguished contribution to a very distinguished series of

* Adapted from an article contributed to an overseas magazine, but owing to war conditions not published.

¹ It is possible, similarly, to define subsistence farming in a way that rules out the subsistence farming of recorded history.

lectures by masters in their field:¹ (6) the demand side of the Industrial Revolution. Miss E. W. Gilboy, in the complimentary volume to E. F. Gay, *Facts and Factors in Economic History* (1932), poses the question in general form in an essay entitled, "Demand as a factor in the Industrial Revolution"; and Mr. Allan McPhee, a pupil of Mrs. Knowles, gives attention to it in his book, *The Economic Revolution in British West Africa* (1920).

Miss Gilboy arrives at the cautious conclusion that "Changing consumption standards, the increase of population and shifting of individuals from class to class, and a rise in real income provided a stimulus to the expansion of industry which must not be underestimated. Although the mistakes must not be made of exaggerating, in turn, the influence of demand, its significant relation to changes in production should be clearly recognised."² And her chief point *en route* is this: "Increase in population cannot by itself increase demand except in the case of a people with a standard of living so firmly entrenched that any lowering of the standard is implacably resisted."³ The Malthus of 1798 was not alert to this: the Malthus of the *Principles* (1820) was. He saw the dangers of under-consumption, and the economists of to-day acclaim him for it. We rejoice that the poor of the eighteenth century, and notably the London poor, so sturdily aped their betters, that the agricultural labourers of Napoleonic England so steadfastly clung to white wheaten bread, and that the urban workers after Waterloo so nearly held their war-time money wage. From the 1820's onwards the growth of consumers' co-operation gave to the working-class the new liberty of a debt-free consumption, which was under their own control; and the ingenious device of consumers' dividend turned consumption into a method of saving the wherewithal to secure yet more consumers' goods in the future. The foundation of the Rochdale Pioneers in 1844 was, therefore, as important to liberty of consumption

¹ A variation of this theme, on which it is so easy to say a little and so hard to say much, is N. S. B. Gras' "The Business Man and Economic Systems" (*Journal of Economic and Business History*, Feb., 1931).

² Students of Edward Francis Gay, *Facts and Factors in Economic History* (1932), p. 639.

³ *Ibid.*, p. 622.

as the Repeal of the Corn Laws in 1846. That John Stuart Mill failed to understand the dynamics of Rochdale shows that he was where Malthus was in 1798, and not where he had arrived by 1820. America, through her gospel of high wages, the theoretical contribution of the Boston machinist, Ira Steward, writing at a time (the 1870's) when wages had to be high enough to persuade a man not to take a free farm, and Australia, through her empirical linking of the standard wage to the cost of civilised living, repeated in their own way the performance of Rochdale; and finally the entrepreneurs themselves awoke to the value of stimulating demand. For whatever the economists or moralists might be saying, entrepreneurs with goods to sell were concerned to encourage expenditure, or, as they put it, to break down sales resistance. And they have succeeded, the danger now being rather that if babies are sacrificed to cosmetics, cigarettes and automobiles, there will before long be a shortage of the human beings from which demand issues.

Mr. McPhee's treatment of demand is incidental to his general picture, but it is none the less important; and the illustrations which he gives are of two sorts (1) the new wants satisfied in England from West African produce, (2) the new wants aroused and satisfied in West Africa by contact with an exchange economy and with the consumption and capital goods of Europe.

Cleanliness, we say, is next to godliness. The missionaries took out religion, wrapped in those flannel waistcoats and moral pocket handkerchiefs which, if we may believe Mr. Stiggins, so greatly edified the infants of West India; and the traders brought home the palm oil, which yielded the soap, which washed the clothes—the dresses, petticoats and under-garments—which the common people could now afford. The laundry that soap built, how it would have delighted Francis Place! Oil, however, to use the language of economic theory, is in composite demand, for scent, cooking, eating, lighting, lubrication and fluxing as well as for soap. And it is also in composite supply; for the wants which it satisfies can be met by different articles, between which there is substitution. There is substitution within the vegetable oil group: substitution between vegetable and

other oils: substitution also for lighting purposes between lamp oil, candles, gas and electricity. Furthermore, vegetable oils are in joint supply. For example, the coconut tree supplies almost the whole range of domestic wants—house, roofing, decoration, furniture, solid food, liquid food, soap, twine and manure.

These distinctions are part of the stock-in-trade of economic theory; and they are of service to the historian when tracing the order in which new wants and the means of satisfying them emerge. It need hardly be said that the interaction between wants and the means of meeting them is frequent and close. Mr. McPhee gives the rise in the demand for palm oil in the following terms:

The great increase of population in England which accompanied and followed the Industrial Revolution meant a much enlarged demand for fats and oils for culinary and edible purposes, which strained the resources of the old established supplies from animal and fish sources. At the same time the situation was rendered still more difficult by the fact that the demand for oils and fats had grown per head of the population. The reason for this increase in the *per capita* consumption was the new vogues of cleanliness and of nocturnal illumination. Cleanliness meant the consumption of soap, and the expanding soap-industry drew its supplies of oils and fats increasingly from West Africa. (As early as 1824 reference is made to "palm oil so useful in the manufacture of soap.") Nocturnal illumination meant the use of candles in the first half of the nineteenth century, when as yet electric light was not thought of and gas was not popularised. The transition from animal to vegetable fats in the manufacture of candles came about in the 'thirties of last century, and E. Price & Co. were the most famous pioneers. By the middle of the century it could be said that "palm oil had become one of the principle raw materials used in the manufacture of stearic candles." Another source of demand for palm oil was a more direct reaction of the Industrial Revolution. The Industrial Revolution meant the substitution of metal for wooden machinery, and concomitantly the tremendous extension of the use of machinery in the processes of industry. This evergrowing industrial army of machines, which can run only by aid of the oil-can, necessitated a new supply of lubricating oils and fats, since the animal and fish supplies were neither adequate nor always suitable. An indication of the extent of this industrial demand may be gauged from the

case of railways, which by 1865 required for truck grease alone over 13,000 tons annually. So much for the demand for palm oil during the first half of the nineteenth century.¹

A similar paragraph might be written for France and French West Africa with groundnuts in the room of palm oil and Marseilles in the room of Liverpool.

The modern era of British West Africa opens with the formation of the Royal Niger Company in 1886. In 1899, when the Government assumed direct control of the Nigerian hinterland, the Royal Niger Company was shorn of its administrative functions, and from 1900 onwards, under the title now of the Niger Company it concentrated on trade. In 1920 it passed under the control of Lever Brothers, Limited. Southern Nigeria is the leading producer of palm oil in British West Africa: Lever Brothers of Port Sunlight, Cheshire, are the leading soap manufacturers of England; and historically we may speak of British West Africa as a traders' empire erected on soap. For although the palm yields other products than soap, and although the several colonies and protectorates yield other things than palm oil—groundnuts, cocoa, cotton, to say nothing of their minerals—yet the contact with soap has been continuous and remains dominant. By far the greatest trading body in the British West Africa of to-day is the United Africa Company, which, in addition to its import business of general merchandise, handles among its export activities some 40 per cent. of Gold Coast cocoa. This body was formed in 1929 when the leading coast traders outside the Niger Company amalgamated with the Niger Company, which Lever Brothers, the parent stem of Unilevers, control. Thus Port Sunlight and the African trade are to the Liverpool of to-day almost what Manchester and the cotton trade were to the Liverpool of Queen Victoria's accession.

It happens not infrequently that the range of uses for a produce is sensationaly enlarged by a crucial invention. Familiar examples are the smelting of iron by pit coal and the vulcanisation of rubber by sulphur. In the vegetable oil industries the crucial invention, or rather improvement, was the process by which vegetable oil was made edible as

¹ A. McPhee, *The Economic Revolution in British West Africa* (1926), p. 31.

margarine¹ and thus enabled to take its place beside oleo-margarine, the butter substitute made from animal fats. It was the contribution of an Englishman, F. W. Loder of Loder & Petty (1887), working on coconuts.² Applied to the palm kernel, it helped to put the "palm-oil" industry, as heretofore understood, into second place. For the palm oil of commerce is the part of the oil which is extracted in Africa itself from the pericarp of the fruit; and this part of it, when used for vegetable margarine, was found to lack the keeping qualities of oleo-margarine. The oil in the palm kernel, which had hitherto been treated as residue, did not suffer from this defect. Palm kernel was, therefore, collected for export to be crushed in factories overseas, and this gave to European countries a new and valuable industry: the value of the palm kernels exported in 1933 from British West Africa being £2·4 million, of which £1 million went to the United Kingdom. The old-style palm oil, however, got some compensation in the expanding tin-plate industry, where it was without rival as a tinning flux.

The figures of export from British West Africa (1934), after converting palm kernel to its oil equivalent, were:

Palm oil ..	140,000 tons: being 41% of world production for export.
Palm kernel } oil equivalent.	147,000 tons: .. 65%
Total ..	287,000 tons: .. 50%

Thus British West Africa supplied in 1934 one-half of the palm oil plus palm kernels reaching the world's markets. *The Economic Survey of the Colonial Empire*, 1933 states that "although both oils fall in the main interchangeable group, palm oil is used principally for the manufacture of soap and candles and to a small extent for margarine, and as a flux for tin-plating, while palm kernel oil is used principally for the manufacture of margarine and soap" (p. 503). Hence "palm-olive" soap.

Although the story of vegetable oils is more complex than that of tea and sugar, nevertheless it, too, is largely concerned

¹Margarine was discovered by the Frenchman, Mégé Mouries, in the time of Napoleon III. He blended "oleo," the oil from the caul fat of the bullock, with fresh milk.

² See F. A. Talbot, *The Oil Conquest of the World* (1914), pp. 213-7.

with commodities of final consumption, the increased use of which per head is evidence of a rising standard of life, except to the extent that eaters of butter become through poverty eaters of margarine. But, the war years of 1914-18 apart, the margarine consumption of Britain has been in the main additional to that of butter, since butter itself has been under rapid increase at falling prices during the last 20 years. A London witness before the Royal Commission on Agriculture in India (1927)¹ the managing director of Messrs. Jurgens, Ltd., with India and groundnuts chiefly in mind, stated that top-grade margarine was almost all made from groundnuts and that this was not only cheaper but of better quality than that made from oleo and neutral lard. The bulk of this margarine, however, went to Germany, serving there the wants satisfied in England by butter.

We turn now to consumption in West Africa. As a market for English produce West Africa first came into prominence about 1700; and it was soon fitted into the pattern of triangular trade which characterised the eighteenth century:—Manchester cottons and Birmingham toys to the Guinea Coast; slaves (with a side cargo of gold dust, ivory, pepper and the gum Senegal used for pasting the print on to calicoes) by the middle passage to the West Indies; sugar, raw cotton and the already mentioned side cargo to England. The leading type of cotton goods was Manchester cotton checks; and, as shewn in A. P. Wadsworth and J. de L. Mann, *The Cotton Trade and Industrial Lancashire, 1600-1780*, the significant feature of the African market (which in 1769 took nearly one-half of the British exports of cotton piece goods) was its exacting nature. The immediate explanation of this is that England, whilst prohibiting the domestic use of Indian cottons after 1700, allowed them to be imported for re-export; and so the cotton mixtures and simple cottons which Liverpool at first sent out had to meet the competition of a host of highly-coloured Indian cottons, obtained through London, and sold in Africa under their Indian names. In 1706 we find the Governor of Cape Coast Castle writing home that "East India goods only and not those imitated are saleable"; and his successor of 1720 declaring that the

¹ Cf. Vol. X, *Evidence taken in England*, Qs. 56,016, 56,116, 56,117.

English product was "of no other service than to put away to the Castle working slaves." But as Lancashire cottons improved, and Indian products decayed in the general deterioration which overtook Indian materials after 1750, the situation altered. By 1770 England could supply pleasing all-cotton goods, not the bright reds which the Africans preferred as long as they could get them, but yellows and greens, which were attractive enough. However, with the War of American Independence the African trade fell away, and the abolition of the slave trade in 1807 intensified the decline.

Of course, for the trader the first purpose was to get hold of slaves. He had no thought of benefitting the West Africans, who supplied the slaves, by developing their taste and expanding their demand. The African market was able to be exacting only because its human cargoes were in such keen demand across the Atlantic. But with the growth of the palm oil trade the natives once again had a means of payment. Nevertheless, the ravages which the slave trade had created, and the internal chaos which persisted long after its abolition, limited effective demand. Indeed, it is probable that throughout the greater part of the nineteenth century the population of what is now British West Africa was declining. Mr. McPhee's account of this middle period is:—

Even during the 19th century the list of imports remained much the same [as in the 18th], although latterly spirits became a more and more important item. If Lagos may be taken as an example of the West Coast in the early 'sixties, the proportions of the value of imported cottons, arms and ammunition, and rum to one another and to the aggregate value of imports were 30 per cent., 9 per cent. and 11 per cent., respectively. At the same time the tentative opening up of the Niger basin and of the Moslem hinterland did not tend to increase the trade in spirits, since they are banned by the Koran, but it did tend to increase the traffic in cottons and woollens, silks and linen, metal ware and gew-gaws such as scissors and thimbles and glass beads. (*op. cit.*, p. 66.)

The arms and the drink traffics were controlled by the Brussels Convention of 1890, and in British territories the importation of liquor from French sources was checked by a high customs cordon.

The modern period he describes as follows:—

Food stuffs have always been imported into the Colonies chiefly to feed the European community of soldiers, merchants and administrators; a recent novel feature has been in some parts the extensive importation of foodstuffs for the native communities. This is a consequence of the development of exchange cultures, such as the cocoa industry, which pays so well that the native farmers devote their whole time to it and grow few, or no, subsistence crops. Necessities such as yams and plantains, rice and butcher meat are usually brought from other parts of the same Colony to the districts producing export crops, but sometimes these necessities are imported from outside. Sierra Leone and the Gambia import a large part of the rice consumed by their inhabitants. In addition, luxuries such as tinned meat, tinned fish and canned fruit are imported more and more extensively. Tinned salmon, tinned oysters and even tinned whale are a great advance on human flesh, and bespeak a tremendous stride in the development of civilisation of British West Africa, morally as well as materially. Throughout the centuries the trend of the import trade can be traced from luxuries such as cloth and metallic adornments, to conveniences such as spirits and tobacco, and finally to necessities such as foodstuffs. This trade in necessities is bound to expand more and more as British West African economic life becomes more specialised and British West Africa becomes more and more one cog in the economic machine. (*op. cit.*, pp. 68–9.)

Since 1870 the import of consumption goods which directly raise the standard of life has been overshadowed by the import of capital goods and stores for the construction of harbours and railways. These indirectly raise the standard of living by the employment which their construction and operation afford and by the export market which they open for the products of the hinterland. Mr. S. H. Frankel puts the total overseas capital invested in British West Africa since 1870 at £116 million, of which £51 million (44 per cent.) was on Government account. The biggest railway builder has been the Government of Nigeria, which by 31st March, 1936, had invested in its railway system of £23 million, carrying an interest charge of £1 million per annum.¹ If it is sought to label the Economic Revolution in British West Africa by a single item, that item is railways—railways which tap the vegetable and mineral hinterland. In

¹ S. H. Frankel, *Capital Investment in Africa* (1938), pp. 170, 393.

1901 the railway reached the Tarkwa goldfield of the Gold Coast: in 1914 Bakuru on the tin field of Northern Nigeria: in 1916 Enugu on the coal field of Southern Nigeria. Palm oil presented an easier problem, for the palm lands were nearer the coast, so that, to begin with, the oil could be rolled down to the port in barrels. But the intensive cultivation of cocoa was impossible without the railway or motor truck; and the history of cotton growing for export from Nigeria is practically the history of the development of transport. The railway map of West Africa to-day is not unlike that of early Northumberland and Durham, where railways led down from the inland coal fields to a series of good harbours on the coast.

At this point we must revert to Miss Gilboy's warning against exaggeration of the influence of demand. After all, alike in Europe and Africa, the consumer himself is rarely the provoker of new wants. Even in so strong a consumers' organisation as the co-operative movement of Great Britain, the amount of pioneering which they do in their own special field of family consumption is slight. Novelties come from the brain of the inventor and reach the consumer through the entrepreneur. Professional men also contribute, the medical profession, for example, in the field of diet. Perhaps the one exception is the demand for leisure, which issues directly from the worker, as his standard rises.

I conclude with the feeling that the most significant relation of demand to changes of production is outside the strictly economic field. When, as economic historians, we try to put together the story of wants and their satisfaction, we find ourselves skirting the edge of a much wider field which we can only enter with effect in the company of other human sciences, and in particular of geography, psychology and medicine. When we come to primitive people, we must go even further, and ask the anthropologist to turn economist for our benefit, as Mr. Raymond Firth has done in his *Primitive Polynesian Economy*.

CHAPTER XXI

DRINK AND DRUGS IN ECONOMIC HISTORY

H. E. Jacob, *The Saga of Coffee* (1935).

G. S. Thomson, *The Russells in Bloomsbury, 1668-1771* (1940).

Margaret Goldsmith, *The Trail of Opium* (1939).

"Depend upon it, Sir, a man does not love to go to a place from whence he comes out exactly as he went in."—*Dr. Johnson.*

To their credit (or discredit) the peoples of the United Kingdom of Great Britain and Ireland have rarely failed to achieve the metamorphosis, but they have done it with a strange variety of aids: the fermentation of the grape: the pressing of apples and pears: the brewing of barley: the distillation of grain and sugar: the aeration of water: the chewing or smoking of tobacco: the inspissated juice and alkaloids of the poppy, swallowed, inhaled or injected: the liquor of the coffee bean and tea leaf. Each creates its own paradise, and for moments of paradise on earth there is no price that mankind will not pay; but human nature being what it is, there are yet others who indulge in total abstinence and glimpse their paradise from the platform of prohibition, which, like birth control, is the final pleasure of super-civilisation.

The demand for these commodities is therefore highly inelastic, but among drinks the use of one may result in the disuse of the other. With tobacco it is different; for since it is not taken into the stomach, the demand for it is complementary to that for drink. The two are complementary also in public finance. Gladstone deemed them the sheet anchor of British finance, just as opium was the balancer of the Indian Budget between 1858 and 1914. For the same reason they were the stock-in-trade of those Home & Colonial Stores of the eighteenth century, the smugglers and their clientèle—a sizable proportion of the total population. These commodities, moreover, have been a secular fountain of foreign trade, in the aggregate of which the exchange of one manufacture for another is rare. For capital and skill are transferable, and therefore in manufacture there are few absolute superiorities. But with drink and drugs it is for

climatic reasons different. If we of the northern regions are to drink wine, coffee or tea, we must import it, and by deliberate policy tobacco was placed in the same category. Cromwell's soldiery destroyed the tobacco plantations of south-western England, and Restoration England, partly for imperial and partly for fiscal reasons, continued the prohibition.

It was said of ancient Greece that captured by Rome she made her wild conqueror captive; and conquered Asia treated her invaders in the same way. For the peoples of Europe, who went out with broadcloth, guns and beer, came home with spices, coffee and tea. For a generation—say, 1670–1730—coffee was sovereign in England, but then it gave place to tea, in contrast with countries where its sovereignty continued. And so to-day certain countries are coffee-drinkers—Italy, France, Germany, the United States: whilst others are tea-drinkers—England, Holland, Canada and, above all, Australia and New Zealand, where tea-drinking is almost a non-stop operation. Napoleon, in his supreme struggle with England, searched Europe for substitutes when he lost his colonies, and in this way sugar beet took its place beside sugar cane, and chicory beside coffee. England, deprived of Russian tallow, lighted her streets with gas-lights—it was William Murdoch who showed us how to do it when he illuminated Soho factory to celebrate the Peace of Amiens. In drink even more than in sport the national character finds naked expression. The liquor of Shakespeare's England was bacchic. Every brain and belly was an aquarium of craziness, of beer and mead made at home, of wines imported from the south of France, the Mediterranean and the islands off the African coast. Hence Falstaff and the Mermaid Tavern—the bibulous, rollicking word-creating, genius-exuding Elizabethans—who are so utterly different from the lean and silent Englishmen of Kipling's India. In this transformation the produce of the East played its part; for coffee and tea are anti-bacchic, the sleep-averting stimulants of oriental civilisation. Coffee is a quickener of the intellect, inducing speech and rousing to conspiracy: tea a soother of jaded nerves and a help to patient resolution.

Coffee came originally from Abyssinia (and therefore in Kenya is home again) to Yemen in south Arabia, and there became the favourite beverage of Islam, which forbade the use of alcohol. From the port of Moka, near Aden, it was taken to India, and in the eighteenth century in Netherlands India it became a staple cultivation on the great island of Java. In the nineteenth it dominated the economy of Ceylon. Like other luxuries of the East, coffee reached Europe by one of two routes: by overland caravans and by ships around the Cape of Good Hope. When the Turks were flung back from Vienna in 1683, one of its defenders, a Pole, George Kulczycki, found in the Turkish camp a great store of coffee beans, and with these opened the first coffee house in Middle Europe, serving with the coffee crescent-shaped rolls and doughnuts. The institution passed up the Danube to Ratisbon and Nuremberg, where for a period it was halted, because it came into conflict with the Titan of the North, King Beer. In the sixteenth and seventeenth centuries northern Germany from west to east was a gigantic repository of beer; and Gambrinus was its god. Formerly the galleys of Venice brought wine to the Low Countries: now the Hanseatic traders brought beer, and Hamlet's Danes got drunk on cargoes looted in the Danish Sound. Northwest Europe began to put on flesh; and the men and women of Rubens' brush are the artist's testimony to the physical inflation.

The England of 1600 was hardly less beer-minded, but Puritanism objected to it and the foundation of the East India Company gave to them and their brethren of Holland the wherewithal to detoxicate themselves. Medicine made itself the ally of religion and learned physicians compared the circulation of the blood with the circumnavigation of the globe. Coffee, the wine of Islam, stimulated the circulation, so they believed. France, always closer than England to the Near East, learnt the use of coffee from the Turks, whose ambassador popularised it at the Court of Louis XIV. The first coffee vendors of Paris were alien Roumanians and Greeks, but in 1702 a great café was opened in Paris—the Café Procope—named after a Sicilian Procopio, who abandoned the exotic Turkish ornamentation and made it

a Parisian institution. In fashion and taste the eighteenth century was France's century, when France became the "café de l'Europe."

In England coffee was regarded for some time as a drug, especially appropriate to a cold-blooded people. Then it was promoted to be an aid to business: the coffee-house of Edward Lloyd was the first home of the marine insurers. This was towards the end of the seventeenth century. For after the Restoration (and Pepys, be it remembered, goes to the coffee-house as early as 10th January, 1660—N.S.), numerous coffee-houses were opened, at which merchants, lawyers, doctors and statesmen foregathered. Such were Garraway's, Will's and Tom's, but the earliest (it is said) was in Cornhill, opposite St. Michael's. At these coffee-houses the men of letters talked to their disciples. Indeed, they almost made it their home. Here Dryden, Swift, Congreve, Addison, Steele and Pope spent many an hour.

But about 1730 the coffee-house fashion disappeared as suddenly as it came; for coffee and the moods which it stimulated were alien to the home-loving Englishman, who preferred his dish of tea in his own house. Johnson's England, led by Johnson, was a tea-drinker, and has never ceased to be so. One would like to call our cafés "*cafetheas*" were it not that America has spoiled the market with its loathly "*cafeteria*." Tea, which refreshes and quietens, is the natural beverage of a taciturn people, and, being easy to prepare, it came as a godsend to the world's worst cooks.

The first century of tea and coffee is also the century *par excellence* of silver plate, among which the choicest was the silver tea or coffee service. The white metal which could not hold its own in the currency standard found an honoured place in the furniture of the rich. The gentility of Bloomsbury was full of it. Of the Russells we read:—

This silver teapot (costing £19 9s. 7d.) was only a beginning. From the first decade of the eighteenth century onwards the store of plate at Bedford House, as at Woburn, continued to be vastly augmented by silver pots and kettles for tea. A silver tea kettle came in 1711, bought from Sir Francis Child, who, although the bank was in full swing, was still carrying on his avocation as goldsmith and silversmith. In 1719 a teapot

with a stand and lamp appeared. The set cost eight pounds and sixpence and was bought from Seth Partridge, of Cheapside, a notable gold and silversmith of the day, who later was to be Prime Warden of the Goldsmiths' Company.

The complete tea equipage, around which the Walpole family sat in Hogarth's picture, had arrived.

What applied to tea, applied to coffee also. The silver coffee pot appeared, to oust the original little china pot. Willaume sold the second Duke a silver coffee pot at the same time as he sold him the teapot.¹

The Russells got their tea and coffee from Tom's Coffee House, or from dealers who sold tea and coffee along with drugs and china ware. Without doubt one reason for the growing popularity of tea after 1730 was the discovery by the ladies that milk and sugar combined well with tea to make a pleasing beverage: and it was a pretty triple harmony—tea from the East Indies, sugar from the West Indies and milk from the domestic cowshed. Rachel, Lady Russell, was one of the pioneers, for she writes as early as May, 1698, to her daughter:

Yesterday I met with little bottles to pour milk out for tea; they call them milk bottles. I was much delighted with them, and so put them up for a present to you.²

The tea came from China—it was not grown in Assam until the 1830's. The best quality was Hyson at 14s. per lb., Souchong and Congo being somewhat cheaper.

Sir Walter Raleigh introduced tobacco to the Court of England in 1598, and King James I in 1604 denounced in his *Counterblaste to Tobacco* the wasting of English substance on empty smoke. But the royal wrath availed nothing against the customs of sailors and travellers, and by 1625 tobacco was in general use. It was not, however, always taken in the form of smoke. In the eighteenth century its chief use, at any rate among the upper class, was in the form of snuff. Campaigns overseas have more than once led to new vogues. The Indian veterans brought back the cheroot, the Peninsular veterans the Havana cigar. The British Army learned the use of cigarettes in the Crimea; and America, though for

¹ G. S. Thomson, *The Russells in Bloomsbury*, p. 258.

² *Ibid.*, p. 257.

centuries she had grown and chewed tobacco and smoked cigars, only became a cigarette-smoking nation after the American Expeditionary Force had learned the habit in France.

The consumption of tobacco on a large scale created an important new industry in England and Scotland. Indeed, it was the beginning of Glasgow's industrial eminence. For as Professor Scott writes in his *Industries of the Clyde Valley during the War*, "The ships [sc. after 1707] came back laden with tobacco, and tobacco predominated in the business life of the city. Then came the day of the "tobacco lords," the outstanding figures in eighteenth-century Glasgow. Streets were named after the new trade, as for instance Virginia Street. And the burden of ships was rated in hogsheads of tobacco" (*op. cit.* pp. 10-11). It is noteworthy that the re-exports were much greater than the amount retained for home consumption—in 1771 imports 46 million lb., re-exports 44 million. It is to be suspected that the majority of the home consumption was smuggled. The imperial significance of tobacco has never been greater than to-day. Assisted by an Empire preference, it is of importance as an export to South Africa, Canada, Uganda and Cyprus and of major importance to the Rhodesias and Nyasaland.

In discussing the opium trade we must tread delicately between sentimentality and cynicism. In imperial history the opium trade was successor to the slave trade, and there is a school of thought which regards the one as no better than the other. If, however, we look at it from the standpoint of the different countries of Asia—India, Malaya, Java, China—it acquires a different significance. It is a branch of their economy comparable to that of tobacco or alcohol in English and Dutch history.

Let us then begin with India. Mr. Trevaskis¹ in his *History of the Punjab* says of opium that as used by the Indians it is a preventive of cholera and malaria and a stayer of fatigue. Part of the Punjab supply is produced within the province, and part is imported from Malwa in Central India. There is also competition from *chavas*, a

¹ H. H. Trevaskis, *The Punjab of To-day* (1931), II, 306.

product of hemp, which is imported—sometimes illicitly—from Yarkand in Central Asia. Were this typical of the main story there would be little more to say. But it is not; for opium played a decisive part in the forcible opening of China to western commerce. It provoked what is justly called the Opium War of 1839–42, and the curtailment of the trade in the interest of China was one of the most difficult financial problems presented to the Government of India in the generation before 1914.

The East India Company did not officially participate in the opium trade to China, but from around 1780 it had a monopoly of its manufacture in British India and was able to impose restraints on the terms of its export from Indian States. The Company, furthermore, licensed the traders who shipped it to China and was well aware of what it was doing. The opium trade produced the cash from which the valued tea shipments from China were financed. The trouble in dealing with China was that neither the Government nor the people desired western products in western fashion. They desired tin, but only for tinsel; saltpetre, but only for fireworks; sea-slugs and birds' nests for delicacies of the table, which Europe could not produce. In the eighteenth century the merchants of Europe paid with silver. With the collapse of the Spanish régime in South America the output of silver declined, and Indian opium filled the gap of 20 years and more, say 1815–1840, between the export of silver and the intensive export of Lancashire cottons. The opium trade dominated the trade returns of Eastern trade in this period and made India and China virtually one unit. It was important enough to have special ships built for it, the fast-sailing opium clippers, driven with reckless seamanship. The tea clippers and the gold clippers carrying miners to the fields followed. Though the traffic in opium was dangerous, the profits were high; and the demand was so insistent that merchants were able to dictate the terms of payment. Thus, before the House of Commons Committee of 1840 on the China trade, W. Jardine of Jardine & Matheson stated in evidence that the opium trade was

by far the safest trade in China, because you got your money before you gave your order. Whatever the difficulty was in

landing it afterwards, you had nothing to do with it. When the cash-keeper reported so much cash paid into the treasury, you gave an order for as much opium as the man wanted and then you had done with it.

In the second half of the century opium was less indispensable to the balance of payments, because the market for cotton goods developed strongly after 1840, and especially between 1850 and 1875, both in China and Netherlands Indies. But meanwhile the commodity was assuming a growing importance in the Indian budget, which the Government of India was anxious to make as bearable as possible to India's millions. By 1900, opium (now a State monopoly with factories in Patna and Ghazipur) was next in importance to land revenue and salt as a producer of revenue, yielding at that date about 4 million sterling. It was therefore hard for Indian officialdom to show any enthusiasm towards the humanitarian agitation which had by this time developed in Great Britain, with invariable support from the United States, in favour of the suppression of the opium trade; and the articles on opium in the *D.P.E.* (edition of 1909) reflect the official coolness. But the Chinese Government was unquestionably anxious to reduce the trade, and the British Government—albeit reluctantly—agreed in 1906 to the step-by-step reduction of opium export, conditionally upon the former not increasing its domestic production in return. This involved an interference with the internal sovereignty of China which that country resented. After 1918 there was no further export to China, and the enthusiasts for the reduction of the trade were able to win the support of the League of Nations, which approached the question as a world problem. The Opium Convention of 1931 secured a considerable measure of international control.

We shall get a more balanced view by considering what happened in other countries. Take first Malaya, where opium is consumed, i.e. smoked, in the form of *chandu*, which is raw opium boiled into a sort of thick molasses. The main recommendations of the Straits Settlements Opium Commission of 1909, which were implemented by stages, were:

- (i) to abolish the farming of the opium traffic to the

Chinese and substitute a government monopoly of 'the preparation and sale of *chandu*;

(ii) to suppress the use of it in brothels;

(iii) to improve the equipment of the opium-smoking shops and prohibit the entry of young persons under 18 to such shops;

(iv) to raise the price in the Federated Malay States to that in the Colonies of the Straits Settlements.

The Secretary of the Commission, Mr. A. Cavendish, has told me how absurd it is to suggest that opium smokers are normally incompetent weaklings: several of the most important witnesses were rich Chinese who were themselves heavy consumers of the drug. In Malaya, at any rate, it seems clear that the problem is not very different from that of the consumption of tobacco and cocktails in England and America.

Netherlands India has a somewhat similar story to tell. In the early days the local Sultans imported opium from India. During the brief primacy of Raffles in Java the regulation of the trade, in the interest of the inhabitants, was stiffened. Between 1850 and 1900 the State practised a policy of laissez-faire, farming out the monopolies of opium, salt and pawn-shops to the Chinese, who were the chief patrons of the drug and the pawn-shop. In 1900 it took over the opium farm, and of late years its concern has been to diminish the hold of the Chinese on the traffic and in particular to prevent them from extending the habit among the natives Javanese. Again there is no evidence of widespread injury to national health.

Miss Goldsmith's book is written with propagandist ardour, and she seems blind to the disastrous fiasco of Prohibition in the United States. Her book proves to be an indictment of British imperialism without any attempt to see the other side. It is, however, important in that it links up the opium trade with the trade in dangerous drugs.

In 1803, a young German pharmacist, F. W. A. Sertürner, isolated morphine—the "substance" of opium as he called it; and his researches were continued by French chemists, who perfected morphine and discovered cocaine, the alkaloid of the coca plant, a native of Bolivia. These drugs,

used medically, were of great value in the alleviation of pain; but the danger of abuse was great, especially after the improvement of the hypodermic syringe by Dr. Alexander Wood in 1853. Since the alkaloids of poppy or coca contain strong doses in minute form, the possibilities of a huge profit from an illicit trade have been enhanced. Drug addicts will give anything to get hold of it, and it can be supplied surreptitiously in ways that are difficult to detect. Readers of crime fiction will recall how often this theme enters into the plot.

Thus the economics of opium are overshadowed by the ethics of it. The British record is not without reproach. But it is at least doubtful whether the pressure of the dealers in opium has done, in the aggregate, more damage to their consumers than that of the liquor interest in the Mother Country. To-day in India more public disorder is caused by drunkards than by opium smokers, and the social intercourse of Europeans alike in India and the Tropical Colonies is made expensive by the tyranny of standing rounds of drinks. If we deny to the Chinese of Singapore their pipe of opium, we should be consistent and put an end to the compulsions of the club-room and bungalow.

CHAPTER XXII

DESIDERATA OF INDUSTRIAL BIOGRAPHY

The trade that enters into the economic history of our books is metropolitan or foreign—the London coal trade, the West Indian trade, the East Indian, the Baltic, etc.—and we have for the nineteenth century at any rate continuous figures of imports and exports which enable us to write a general account of England's foreign trade, as for example in A. L. Bowley's *England's Foreign Trade in the Nineteenth Century* (1905). The treatment of industry is more difficult, and our usual practice is to take the more important industries and handle each as a unit over a period of years. The general picture of industry at any particular period is difficult to draw; and still more difficult is the qualitative survey of industrial progress as a whole. In an age of *laissez faire* no body of legislation pulls it together, as in the great codes of Elizabethan England. We have no tie but that of exports and imports once again—though this for England is a good tie, because industries with an export market are “basic” trades *par excellence*, in the sense in which the Royal Commission on the Distribution of the Industrial Population, § 65, uses the term. But there are other methods of approach. One is the survey of industry, county by county, as in the “Victoria County History,” but this is too voluminous for general use; and one can merely say that students will find interest in reading the volume for the county to which they belong. The arbitrariness of a county boundary, however, makes it a bad unit of study in general, and regional studies are of more consequence. They lead directly to an analysis of the causes determining the localisation of industry, and I deal with them by types later. As a prelude to this, there is one other avenue of approach, the industrial biography; and inasmuch as such biographies are usually concerned with figures of national importance, their interest is more than local. This is especially true of the lives of the great engineers.

The types of biography are various. There is the family

biography written from family piety, the professional biography written for a fee (a type happily in decline); and a normal defect of these is that the writers are unfamiliar both with the technique of the industry which their hero served and with the economic background of his time. But there are exceptions. Thus C. B. Noble (Lady Noble), *The Brunels* (1938), is the work of a descendant; and although the technical part is a trifle thin, it is adequate as far as it goes; and the personality of the Brunels, father and son, is so distinctive and so significant that family sympathy and sensitiveness to their genius are all-important. If they owed anything to their environment, it was to the France from which they came and not to the England in which they worked. On the other hand there are biographies of descendants anxious to do justice to a great ancestor or relation, for which the writers are ill equipped, either from lack of material or of general economic knowledge. Thus it would have been better for the reputation of J. L. McAdam, if the centenary life (*John Loudon McAdam* by Roy Devereux, 1936) had been written either by an academic historian or an engineer. However, a great industrialist is not necessarily capable of writing the life of another great industrialist. A terrible example of this is seen in Andrew Carnegie's *James Watt*.

The occasion of a biography affects its type. A life written by or for the family soon after a man's death, especially if it was written in the nineteenth century, is generally lacking in critical appreciation and sententious, if not sloppy. Therefore the best biographies on our shelves are generally not the first. The centenary of a man's death affords a suitable occasion for a new life. We have also the remarkably happy result of a great engineering firm causing first-rate biographies to be written as a present to its shareholders. Then—and it is here that Manchester has led the way—there is the biography based on newly discovered documents; and these have all the thrill of novelty. Finally, as in this present year 1940, there may be the centenary of a great event; and no doubt but for the outbreak of war the Postmaster General would have seen to it that in the month of May the post was in a position to deliver the world over a

new life of Rowland Hill. But alas! there will only be post-cards at 2d., and we shall have to do it all over again from William Dockwra onwards.

Institutions and firms have their lives as well as individuals; and these too are of great value to the student. Three notable examples of institutional biography are, C. Wright and C. E. Fayle, *History of Lloyd's* (1928): *Annals of Lloyd's Register* (Centenary Edition 1934): J. A. Scott Watson, *History of the Royal Agricultural Society of England 1839-1939* (1939). Mr. Wright signs as Chairman of Lloyd's: the Preface to the *Register* is by its Chairman: Professor Scott Watson edits the Journal of the R.A.S.E. Among the first firms to issue their stories were the banks; and as their story is one of growth from local to national stature, it is of more than local importance. If and when we get a full documentary history of the Bank of England, we shall, of course, have something of unique and central value to English economic history. An assiduous collector will probably have a score or more books or brochures of particular firms, frequently presented by courtesy. The three last acquisitions to my own stock are H. A. Chilvers, *The Story of de Beers*, Ransome's "Royal" Records, 1789, 1839, 1939, and 100 Years in Steel (Firth-Brown Centenary), 1837-1937. The facts relating to their own business the reader is not in a position to dispute, but even here one must be on one's guard against incidental matter which is not true. Thus the Firth-Brown volume states, p. 30, "On 20th July, 1837, the first railway train left Euston Station en route for Boxmoor . . . two years later, in 1839, the *British Queen* made the first Atlantic crossing under steam alone." But the *Sirius* and *Great Western* crossed under steam the whole way in 1838, and the *British Queen*, like all the early steam packets, had sails as well as paddle or screw. The only respect in which this ship was first was in the placing of the contract for her (October 1836). But the first contract fell through, and when the promoters found that Brunel was likely to anticipate them, they chartered the *Sirius* of 700 tons, a much smaller boat than either the *Great Western* or the *British Queen*. There is a full account of this in E. C. Smith, *Centenary of Trans-*

Atlantic Steam Navigations ("Transaction of the Newcomen Society," Vol. XVIII).

In all industrial biography there is one pre-requisite. The technique of the industry must either be kept subordinate or fully and clearly explained. It can be done even in physics, as Sir W. H. Bragg has shown,¹ but Mr. R. Appleyard's *Charles Parsons* (1933) does not attain a like success. Yet Parsons, inventor and engineer, is as fundamental almost as Watt. The second pre-requisite, or rather, desideratum, is a table, in the frontispiece, of main dates in the subject's life and, at the end, a good map or maps. The first is merely a question of forethought, the second, unhappily for the academic writer, a question of expense.

I have not so far defined industrial biography. I would include it under industrial, commerce and agriculture. The centenary of Coke of Holkham's death comes in 1942, and here is a great opportunity for a biography of the modern type set on the background of the Norfolk agriculture which he helped to make.² Though I am always loth to admit a distinction between economical and social history, I would say that social biography is the twin of industrial biography rather than the same thing. Examples of social biography are the numerous lives of Cobbett, Shaftesbury and Owen; and I am now reading for review two biographies in the social field, David Williams' *John Frost, A Study in Chartism*, and J. H. Hutchins' *Jonas Hanway, 1712-86*. But the line of separation is very narrow, and in Owen, at once a great industrialist and social reformer, it does not exist.

After these prolegomena I proceed to the study of two biographies which on any test are first-class, in order that we may see the ground which a single biography can cover and how it weaves into the pattern of economic history.

Sir Alexander Gibb, *The Story of Telford* (1935).

T. S. Ashton, *An Eighteenth-century Industrialist, Peter Stubs of Warrington, 1736-1806* (1939).

Since Telford died in 1834 the volume commemorates a centenary. The author's great grandfather, John Gibb, was

¹ E.g. *Recent Developments in European Thought*, ed. Marvin, "Atomic Theories," by W. H. Bragg.

² This background has been newly furnished by Naomi Riches, *The Agricultural Revolution in Norfolk* (University of North Carolina, 1937).

Telford's associate, and John Gibb's son, Alexander, was Telford's pupil in his London home. Furthermore, the author is himself a distinguished engineer, whose accomplishments require a column and a half in *Who's Who* for their mention.

Telford was born in 1757, a year after McAdam, a year before Nelson and in the same year as Pellew. Coke was then a child of three, Crompton a child of four. Pitt and Burns were not yet born. He died in 1834, two years before McAdam. The life of an engineer is ubiquitous, and we follow Telford from his Scottish home in Eskdale to his work as a mason at Somerset House, from Somerset House to Portsmouth dockyard, where he built the Commissioner's house—he was now a contractor—and from Portsmouth to Shropshire, which became his English home. Shropshire was then the centre of the iron industry. The first iron bridge was built by the Darbys in Coalbrookdale over the Severn in 1779 at the point which is now the little town of Ironbridge. Telford built the second iron bridge across the Severn in 1796 over against the ruins of Buildwas Abbey two miles higher up, and the present bridge has inscribed upon it "This bridge was erected by the County Council, 1905–6, to replace Telford's first cast-iron bridge constructed by the Coalbrook-dale Company in 1796. The underlying casting is a portion of the old structure."

Telford and his bridges and aqueducts, some of stone and some of iron, are the most enduring monuments of his genius. The most famous was the Menai Straits Suspension Bridge (1821–26) by reason of its beauty and its position on the mail route to Ireland—he and Henry Parnell examined it on 29th January, 1826 and that evening the first London–Holyhead stage coach passed over it. In his day every big engineer submitted a design for a new London Bridge, but John Rennie got it finally, though Telford's one-arch iron span was more glorious in conception. And one of the great thrills of the young Brunel's life was the announcement that his design for the Clifton Suspension Bridge had won against that of the great Telford. Of Telford's aqueducts, the Pont Cysylte across the Dee and the Chirk across the Ceriog—part of the Ellesmere canal system—were finished in 1805

and 1801 respectively. His last two great bridges were the Dean Bridge in Edinburgh (1829-31), still erect, and the Broomielaw Bridge at Glasgow (1829-36), replaced owing to the deepening of the river in 1899. Sir Alexander's book contains photos of an excellence which makes the academic historian envious. Of special interest is the way in which Telford felt his way with the new material of iron. Equally proficient in stone and iron, he carried each material to the equimarginal point, improving in general technique as he went along.

Telford and Roads is the relation in which he is usually introduced in economic history; for turnpikes preceded canals, and it is easier to narrate the history of roads than that of civil engineering. But it is just here that the biography is a little lacking. One would have welcomed a full chapter in which an expert like the author compared, carefully and fully, the methods of Telford and McAdam—material and construction, organisation of labour and administration of the road system.

But Telford, though he worked in Shropshire, though his home was first in Shropshire and then in London, was a Scotsman; and his biographer, a Scotsman also, helps us to assemble all that Telford did in and for Scotland by a map showing the roads, bridges, harbours, piers, canals and railways for which he was the engineer. The most famous was the Caledonian Canal, though it was far the most wearing and disappointing in commercial results. For, like the Inter-colonial Railway of Eastern Canada, it fell between the two stools of utility and defence. The chapters relating to it are of fundamental importance to the history of Scotland, and they are also of great personal interest, because the secretary of the Commission in control of the operations—it was financed by the Government—was John Rickman of census fame; and the two were great friends. Rickman, indeed, was his first biographer. In the index Sir Alexander analyses under personal names only that of Telford, and here there is a little slip, "a Tory stoic, 93." This refers to Rickman and not to Telford, as p. 93 makes clear. Telford himself was a liberal, and also a maker of verses. He seems even to have contemplated at one time a literary life, and

he offended his Shrewsbury patron, the rich Pulteney; by posting a copy of Tom Paine's *Rights of Man* under Pulteney's frank.¹

The Caledonian Canal failed through no fault of Telford. Its defect was that it ran from nowhere in particular to rather less than nowhere in particular. It was not in concept an exit canal from an inland centre like Manchester, but a transit canal like the Panama; and the only place where such a canal could have been built with profit was between the Forth and Clyde. But all the other things which Telford did for Scotland were a great success. There was hardly a harbour which he did not improve. In chapter after chapter we find him at it. The disappointment over the Caledonian Canal was, however, offset by his great work in the service of Sweden—the construction of the Gotha Canal, with which he was connected for over twenty years, from 1808 onwards.

Telford and Railroads is a side of his life which comes as a surprise, but it is important and shows the elasticity of his mind. A great canal builder, he nevertheless saw the scope for railways, and deprecated only extravagant hopes and financial mania. The first railroad which he projected was from Glasgow to Berwick, but it was a project only. The second was a horse-drawn tramline, constructed (1821-26) between Stratford-upon-Avon and Moreton-in-the-Marsh for the conveyance of coal, stone and agricultural produce. After that came a steam railway—the Clarence Railway from a point on the Tees to a point on the Stockton and Darlington Railway (1828-29). In 1825 he was offered the appointment of engineer to the Liverpool and Manchester railway, but refused it, partly on account of advanced age and partly out of loyalty to the canal companies which employed him. He had, however, as engineer to the Exchequer Bill Loan Commission (a creation of Sir John Sinclair) to examine the plans when the Company applied in 1827 for a loan, and in 1828, accompanied by George Stephenson its builder, he surveyed the line in detail. Telford was big enough to work with the new generation. If he was conservative, it

¹ This Pulteney was the parsimonious Scot who came into his fortune and name by marriage with the heiress of William Pulteney, Earl of Bath, and Telford's first work in Shropshire was to restore a derelict castle for him.

was only to the extent of thinking that canals could for long do heavy work better than the steam railways. In the result, England went to the other extreme and throttled her canal system by allowing the railways to secure the central links. It would have been to the advantage of England if a son of Telford could have been made Surveyor General of Canals in the early railroad age.

The biography closes in a restful mood, where no map need be consulted, with Telford in his London home, hospitable, busy and always in the swim. We are rightly proud of our educational institutions to-day, but in those early days, before engineering schools existed, there was for the few a very admirable substitute, residence at the board of the great practitioners. Telford in 1820 became the first President of the Institution of Civil Engineers, founded in 1818, and he is a very poor advertisement for those who like to imagine that every great employer of those days except Robert Owen was a hard-hearted capitalist, seeking profit only.

The second biography with which we deal is very different in scope. For while Telford has always been a world figure, few of us had even heard the name of Peter Stubs. Happily the author (as he tells me) defeated the desire of the Manchester University Press to style this decent-spirited publican on the cover of the book "A merchant prince of the eighteenth century." The other extreme would have been happier—a modest "P-S," to commemorate the trademark on the files which he was so concerned to protect against pirates. For this publican was a file maker and the business still exists, and Mr. Ashton had the good fortune to be entrusted by the late George Unwin with the editing of the firm's records. At this point I will allow myself to quote at length from a review contributed to the *Economic Journal* (History Supplement), of February, 1940, pp. 402-3.

Peter Stubs, the father of 18, did most of the things and was in most of the situations that the economic historian wants to know about. He was an innkeeper (this must have pleased Unwin!) as well as a maker of files; for the paste which he used to protect these came from malt dust and "barn bottoms." Warrington then, as now, was famous

for its ale, and the inns to which he supplied ales were houses of call for his trade customers. Furthermore, at his own inn, the White Bear, there was a special Soldiers' Room, as well as a Box Club, and in a special chapter the author lifts the veil on the recreational and friendly society activities of the well-run public house of that age.

File making, the making of the P-S files, which James Nasmyth, also of Lancashire, greatly praised, was his chief concern; and successive chapters describes the technique (briefly), the workers, the material and the markets. Finally Mr. Ashton widens his brackets and under Carriers and Medium of Exchange explains the communications and commercial system, as they affected Warrington and P-S. Warrington was uniquely situated, equi-distant from Liverpool and Manchester, in touch with the Bridgewater Canal and Mersey Navigation, and at the point of intersection between the London-Carlisle and Chester-York main roads; and Lancashire was the county which used the trade bill in preference to the bank note. It was only at the end of his career (he died in 1806 at 49) that he regularly had an overdraft from the bank: upon which his biographer remarks

When—but only when—he was sufficiently well-established to invest in buildings and equipment and to produce in a large way did the bank begin to provide capital on a significant scale. Was this, one wonders, the experience of other industrialists also? Did the country banks have little to do with the inception of businesses, but much to do with their subsequent expansion? (p. 116.)

The items of most general interest emerging from the analysis are, perhaps, these: (1) the universality of petty debt, and its encumbrances, among the out-workers; (2) the growth of Stubs from a small master to a considerable employer with a central plant; (3) the leading uses of the file, by the toolmakers, the Liverpool wooden ship-building industry and the Lancashire textile industry, where they were used on every spindle; (4) the large amount of semi-trade barter and of offsetting commercial transactions, which were sometimes triangular; (5) the way in which one activity led on to another. File-maker, maltster, brewer,

seller of tools, combs and (school) slates, he was always being attracted to some new venture; and this in 1799, a year of war and scarcity, led to a part-ownership in vessels from Liverpool to the Baltic. But when his new premises were building, he seems to have withdrawn from his more speculative activities. From beginning to end the P-S file came first.

As a man he, like Telford is always giving the lie to the legendary employer of tendentious history. He belonged to the Church of England, frequented the race course, sent his children to schools where they got some Latin, was constantly helping friends in distress and had uniformly good relations with his workers. Moreover, his wife, who helped with the inn, made her own clothes. Two years before he died he was assessed to Income Tax on a gross income of £700, but no doubt his real income was greater and much was put back into the business for its expansion under himself and the sons who succeeded him.¹ Mr. Ashton has not exhausted his treasures; and calls for "some future student, who, if he tells it with the details the records allow, will write a far longer book than this" (p. 146). But it will not be a more fascinating one.

¹ Research, I think, would reveal that the great fortunes of the day were made not by the Stubbs's, the Telfords or the Boultons, but by exploiters like Arkwright: by great lawyers like Lord Chief Justice Mansfield, the maker of much commercial law, who in 1793 left a fortune in which the interest from mortgages alone yielded £26,000 a year: and above all by urban and mineral landlords.

CHAPTER XXIII

TREVITHICK AND CORNWALL

I

The "tre" in so many Welsh and Cornish names means homestead or village, and the accent in Trevithick is on the "vith." He was born in 1771 in the parish of Illogan near Redruth on the north-west coast of Cornwall. Redruth and Camborne to-day are almost a continuous area, and it was at Camborne in 1801 that he built and tried out his famous steam road carriage. The statue erected to him there in 1932 faces Beacon Hill, where the trials were made. In his left hand he holds a model of the locomotive, to which he is pointing with his right while gazing up Beacon Hill. The panels of the statue show the Cornish boiler, the South Wales rail locomotive, the ladder dredger, and a sailing ship, with the mule track over the Andes. His exploits in South America have been narrated already (pp. 41-2). I deal here with his achievements as an engineer in England. He died at Dartford, Kent, in 1833, and the centenary commemorations supply the material on which my account is based. They consist of Professor Inglis' memorial lecture of April, 1933, to the Institution of Civil Engineers and of the new life, *Richard Trevithick the Engineer and the Man*, by H. W. Dickinson and Arthur Titley (1934).

Trevithick invented so many things, and two of them were so striking, the steam road carriage and the steam rail locomotive, that the layman is apt to forget, or at any rate to understress, what the engineers of to-day consider his most remarkable achievement, namely, the non-condensing high-pressure engine, nicknamed from its action a "puffer." I will therefore begin by quoting in full from Professor Inglis:

The revolution wrought by Trevithick through the introduction of the self-contained, high-pressure steam engine has its only counterpart in that effected by the advent of the high-speed internal combustion engine. To realise its significance, we must visualise the steam engine as he found it, see-sawing a massive beam with ponderous deliberation, taking months to build, and, when once erected, as immovable as a cathedral. In comparison we have Trevithick's direct-acting, high-pressure engine, not inferior in coal consumption, yet capable at short

notice of being erected anywhere and applied to almost any purpose.¹

As economists we can easily remember the date of it thus. As Pitt in 1797-98 turned his thoughts to the employment of high-pressure taxation, which resulted in the income tax of 1799, so Trevithick turned his attention at this same time to the employment of high-pressure steam, which resulted in the Cornish engine. Its first application was in connection with winding engines for which, with the increasing depth of the mines, the need was becoming ever more urgent. Watt had already applied his cumbrous pumping engines to this purpose, but Trevithick's compact, self-contained and semi-portable engines were obviously more suitable. Their initial cost was small, and the expenses of erection and transportation were negligible. It was these qualities which allowed him to apply it to locomotion itself—on the high road, on iron rails, in boats; and it was only ill luck and obstruction which prevented him from gaining laurels which fell to George Stephenson and Robert Fulton. Few of us, as we walk to-day along Gower Street from the Euston Road to the British Museum know that we are passing the site of his experimental London railway of 1808, to which admission was given by a card containing a picture of his portable steam engine with the motto "Catch me who can." The railway was circular and the locomotive did 12 miles an hour. Trevithick was of the opinion that it would go 20 or more on a straight railway, but after some weeks a rail broke and the engine flew off in a tangent and overturned; and "Mr. Trevithick having expended all his means in erecting the works and inclosure, and the shillings not having come in fast enough to pay current expenses, the engine was not set again on the rail."²

Because so portable it was admirably suited to agriculture. Trevithick told Sir John Sinclair that he thought every part of agriculture might be performed by steam, and he advertised agricultural engines for sale. The first of these he built in 1812 for threshing corn, replacing the cattle mill

¹ Trevithick Centenary Commemoration. Professor C. E. Inglis, *Memorial Lecture*, p. 8.

² Extract from a letter of J. I. Hawkins, civil engineer, quoted in Dickinson, etc., *op. cit.*, p. 111.

previously used. Quoting again from Professor Inglis,¹ let us remark a further excellence in Trevithick's engines:

The improved efficiency achieved by Trevithick was not only due to working high-pressure steam expansively, it was in large measure brought about by his revolutionary improvements in boiler design. Watt's low-pressure boilers were little better than cast iron boxes heated by an external fire. . . . At an early stage Trevithick placed the fire inside his boilers and employed internal flues, and, as soon as wrought iron plates were procurable in sufficient sizes, he abandoned the use of cast iron. . . . Thus, in addition to being the originator of the high-pressure engine, Trevithick has an almost equal claim to our respect and admiration as the leading pioneer in the construction of boilers designed in accordance with scientific principles.¹

Other inventions swell the list—the plunger-pump (his first-born), the hydraulic pumping engine, the metal tank for the stowage of cargo on board vessels, the steam dredger, specialised mining apparatus, the heating of apartments by hot air, a recoil gun carriage. Nevertheless this prolific inventor, though he had good friends and a devoted family, in the very midst of his output (1811) was made bankrupt in London and had to retire to a sponging house in a street of refuge for debtors; and at the last, after the financially disastrous decade in South America (1817-27), he died in poverty, and was buried in Dartford upper churchyard in a part reserved for the poor with no stone to mark the place.

Remembering how much Watt owed to Boulton, we are tempted to say, "If only he could have found a Boulton." But if he had, he would not have allowed himself to be led by him. For he was a wayward and impetuous genius, and his action in going abroad for ten years at the specious invitation of a Swiss adventurer, Francisco Uvillé, was only on a par with the previous association with a shady character, by name Robert Dickinson, which had involved him in the bankruptcy of 1811. He was also a dangerous man to cross; for he was of enormous physical strength. And when after his return from South America, certain gentlemen in London offered him a cheque for £8,000 in return for his mining grant of the copper mountain in South America, he refused the offer angrily. "I would rather" (he told a friend) "kick

¹ *Op. cit.*, p. 14.

them downstairs."¹ Again and again he was on the edge of a fortune, which always just eluded him. He was not the lowly, exploited inventor of the Samuel Crompton, Josue Heilmann type, but a dynamic force whom even a Boulton could hardly have kept in check. The one thing he did not invent was a pressure gauge which would have registered the imminence of a financial explosion. Very characteristic of the man were the last moments of the travelling engine of December, 1801. "The carriage broke down after travelling very well, on an upward ascent, in all about three or four hundred yards . . . and the parties adjourned to the Hotel and comforted their hearts with a roast goose and proper drinks, when, forgetful of the engine, its water boiled away, the iron became red-hot and nothing that was combustible remained either of the engine or the house."²

Probably one man would have understood him entirely, the man who with his own son built the tunnel under the Thames which Trevithick went half-way to accomplishing, and this was his contemporary, M. I. Brunel, who also in 1821 saw the inside of a debtors' prison.

We of the North are apt to forget the enormous contribution which the South made to the first phase of the revolution in engineering. Savery was of Plymouth, Newcomen of Dartmouth, Henry Cort of Portsmouth, Humphrey Davy of Penzance. It was also a Cornishman, Henry Trengrouse, who invented the rocket apparatus for ships in distress in 1808. In his case the contact between stimulus and invention was close and obvious, for the year before he had watched with horror the wreck of H.M.S. *Anson* on Loe Bar. The other inventions, too, were the product of seafaring or mining. Portsmouth and Plymouth were naval centres calling for constant improvement in equipment and material. The mines of Cornwall were getting so deep that they had to be drained or closed. Trevithick's father was a mine manager, and the son's inventiveness received an early stimulus in the effort of the county to free itself from the heavy monopoly of Soho, either by defying the patent or by inventing something which did not violate it.

¹ H. W. Dickinson, etc., *op. cit.*, p. 215.

² Cf. *Ibid.*, etc., *op. cit.*, p. 48.

II

I follow Trevithick into Trevithick's Cornwall, yet with fear and trembling; for to me Cornwall, its landscape, its people and its traditions are little known, and what follows is the result of reading and conversation only.

From mining and trade certain sons of eighteenth-century Cornwall obtained great wealth, and among these was William Lemon, who died in 1769 after building for himself a great mansion, Carclew, between Truro and Falmouth. By Trevithick's day the grandson, Sir William Lemon, was in power. It was he who impaled the deer park and with his own hands planted many of the shrubs and trees that made the grounds of Carclew famous. Cornwall then was not the holiday ground that it is to-day. Only at Bude did the gentry and invalids of Launceston, the county town, come to bathe and take the sea air. The coast, which is now given to ramblers and bathers, was then the scene of savage things, for Cornishmen had an unpleasant reputation for wrecking, i.e. looting wrecks. There were few lighthouses or harbour beacons, and the inland was as forbidding as the coast—steep, narrow lanes and wild moors swept by wind and rain. At the mine heads a familiar piece of apparatus was the "whim," by which with the aid of horses and oxen the ore was hoisted, until first Boulton and Watt and then Trevithick adapted it to steam power. The ore was blown out of the rock by gunpowder and accidents were frequent. For light the miners used naked candles, but there was no danger in this—Sir Humphrey Davy's invention served the coal mines of the North. The miners were paid by "tribute." That is, they undertook to drive a vein and raise the ore, finding their own tools, etc., on condition of receiving a proportion of the profits. So too the smelters were paid with 8 parts in 20 of the tin they smelted. Cornishmen liked a gamble with fortune, whether underground or on the high seas. But there was a sober and gentle side to their nature, as Wesley found: Gwennap Pit, where he preached, is still a Mecca of Methodism. And William Lovett was a Cornishman. To-day, the mining of Cornwall is almost extinct. For while Malayan tin may be picked up on the surface for £30 a ton, it costs £150 to dig deep into the earth to obtain

a ton of Cornish tin; hence copper and tin have been superseded by china clay. The high ground near St. Austel is covered with white pyramids of the sand left behind when the clay is washed out. They are since Trevithick's day, when the industry was in its infancy. For the 1,200 tons a year of his time, 700 times as much was exported in 1927. But only a small part of it finds its way into china: the rest goes into paper, rubber, linoleum, whitewash, tooth paste, etc.

Equally famous with the mines were the fisheries, which at that date meant pilchards. When the look-out man ($\Thetaυννο-σκόπος$) espied them, he gave a shout of "Hevva"; and a boat rowed out to surround the shoal and encircle it in a long "seine" net, which was then anchored in position. Within the circle of the seine the fish were trapped in smaller pocket nets and scooped from these by hand buckets into other boats. The catch was taken to pilchard cellars, cleaned and dried and packed into barrels. Most of it was exported to Roman Catholic countries, where it was much appreciated during Lent. Now-a-days, herrings and mackerel are as important as pilchards and all three are caught out at sea by trawlers. The Cornish fishermen own small petrol-driven boats, but find the competition with the big steam trawlers of the east coast severe.

In Trevithick's time there was one important trade, now presumably extinct. This was the vote trade, with the electors as producers, the borough patrons or borough mongers as general managers and the candidates as customers. Cornwall had 21 boroughs and only in a few had all the householders the vote; in most, the franchise was restricted to some two dozen, often to the mayor and corporation alone. It was not uncommon to bribe the recorder and falsify the returns. The borough patron was a manager of higher standing than the borough monger. He belonged to one of the old families such as the Edgcumbes or Rashleighs, whereas the borough mongers were *nouveaux riches*, such as Sir Christopher Hawkins, for whom Trevithick built his first agricultural steam engine, and Sir Manasseh Lopez, who (the *D.N.B.* tells us) was imprisoned for bribery and corruption in 1819. The managers, patrons or mongers,

bought the electors' votes by direct bribery or patronage. The candidates (the customers in this flourishing trade) paid for their seat, sometimes out of their own pockets, sometimes out of their party's funds. The retired East Indian Nabob was a frequent customer. But an adequate account of this county trade, which in ethos resembled the occupation of wrecking, would require a chapter to itself.

Cornish agriculture was not remarkable in 1800. The new potatoes, the broccoli and the daffodils which now go to London, the Midlands and South Wales, are a form of agriculture which only the railways made possible. But one excellence Cornwall had even then, its clouted cream, and one archaism at least, the use of draught oxen.

Cornwall has never had big towns. Of outstanding importance commercially was the port of Falmouth, from which ships could clear out of the English Channel even in a south-west wind. The harbour, land-locked behind hills and large enough to float the royal navy, was the safest in all England. Bodmin and Launceston shared the county assizes, but neither had as many as 2,000 inhabitants. They also shared the gaols. Launceston's in which George Fox the Quaker was once imprisoned, was a medieval dungeon over the town gate: Bodmin's was a model prison built in 1779 after the plan of John Howard. Trevithick's home was at Camborne and Redruth—he lived in both. At Redruth also lodged James Watt, and here William Murdoch first lighted a house with gas. These twin townlets were in the centre of the Cornish mining district, Redruth having a population of about 5,000 and Camborne of about 4,000 in 1817.

I have only once met a group of Cornishmen, but it was in a significant situation—4,000 feet underground in a gold mine in Mysore. When we got to the surface, they showed me a bar of gold, which they were stamping, and told me I could take it away if I could lift it with one hand, which of course I couldn't. And the last thing which one of them said to me was, "I wonder if I'll ever see Cornwall again." But it was well for them that I was not a Trevithick. For on one occasion, Captain Dick lifted a 9-inch pump barrel, weighing 7-8 cwt., hoisted it on his shoulder and bore it off the field!

CHAPTER XXIV

TYPES OF LOCAL GROWTH

Sir Hubert Llewellyn Smith, *The History of East London from the Earliest Times to the End of the Eighteenth Century* (1937).

Sir William Foster, *East London* (Historical Association, 1935).

Three main types of local growth are: (i) the suburbs of a great city; (ii) the hinterland, working on metal, fibre or clay; (iii) the commercial riverside. A metropolitan suburb is the outstanding example of (i), and we take the oldest London suburb, East London. Because of their adjacency and individual importance the port of Liverpool and the factory area of south-east Lancashire, with Manchester as its centre, have frequently been studied together. As alternative types of (ii) and (iii) we take two widely removed areas, the West Midlands and Tyneside.

I

EAST LONDON

We have little to be proud of in our suburbs. The meliorists—and they are a fashionable tribe to-day—are always ready with technical reasons to account for the short-comings of our cities. It seems to them a wonderful thing that with the world's wealth behind us we have at last succeeded in equipping our cities with drains, sewage farms and water closets. It is a strange point of view surely, in view of the fact that 20 centuries ago the Roman Empire built cities which were worthy of the name. Not only had they a good system of drainage and an abundant water supply, but the city as a whole was a thing of beauty and convenience, with covered porticos protecting the walkers from sun and rain, large markets, beautiful baths, numerous and well-arranged buildings for sport and exercise—to say nothing of the splendid public provision for religion, education and the offices of government. We have been too busy with the increase of our wealth and numbers to afford this.

Those who study the colleges of Oxford and Cambridge know how in the early nineteenth century there was a dreadful period of ugly building, which we of the last 50 years can claim to have greatly bettered; and one might have hoped that the last 50 years of suburban building would have been accompanied by equal progress. But it is not so, except in select residential suburbs with their beautiful gardens, playing fields and golf links, and in the rare model suburbs of private philanthropy and public enterprise.¹ The chief reason is that there is no heart in them. The heart is in the main town, where so many of the suburbans spend their working day. The result could hardly have been otherwise in view of the veneration of English law for the ground landlord, the multiplicity of local authorities and the fear that regulation will scare industry away and lead to an increase of the local rates. Such in brief is the story of the newer suburbs, some of which have arisen overnight from the fields. From the standpoint of agriculture and the national food supply they are a menace, like that of the advancing Sahara—an urban desert of tarmac, bricks, cemeteries, reservoirs, factories, refuse dumps and sewage farms. Population springs up naturally along the riverside, where is also the most fertile land. The Metropolitan Water Board (it has been charged) took 200 acres of land at Walton-on-Thames, perhaps the richest horticultural land in England, to obtain an additional supply of water for the washing of motor cars. The waste by the purchase, compulsory or otherwise, of land from Battersea to Esher has deprived London of its nearest and healthiest source of fresh vegetables, and England of the skill of hereditary market gardeners. One result of the present war may be that we shall do better here in future.

East London was not a suburb of this type. For it was a suburb even in Roman London, and it has always had a soul of its own inhabiting the breasts of those good-natured eggs whom we call cockneys (cock-eggs). When the Co-operative Wholesale Society was excavating for its administrative block in Leman Street, it uncovered a Roman burial place, containing an urn in excellent preservation, and similarly

¹ Saltaire, Bournville, Port Sunlight: Hampstead, Wythenshawe, Speke.

when building its green-fruit warehouse at Spitalfields it uncovered the site of St. Mary Spital Priory, and underneath found skeletons and Roman urns containing spices which had been buried with the dead.

The limits of East London are set on the south by the Thames with its U-shaped Isle of Dogs, within which some of the docks lie; on the west by the line of the L.N.E.R. from Liverpool Street to Cambridge past the barrels and back yards of Bethnal Green through Hackney to the River Lea. The northern limit is set by the green belt of Victoria Park, beside which the Lea flows south to the Thames at Blackwall, across Old Ford and under Bow Bridge. The Lea is thus the eastern limit.

Inside this was the Roman suburb, which in medieval times comprised the manor and parish of Stepney (Stybb'a's hythe), commemorating some old Saxon warrior. With the great growth of seafaring and commerce in Elizabeth's day, East London resumed its ancient rôle as the suburb of an imperial city. Trinity House, the pilot and lighthouse authority, was lodged at Ratcliffe by the Thames, to remove later to Water Lane, and the establishment by the East India Company (1614) of a repairing dock and building yard at Poplar Marsh industrialised Poplar. Away from the river were the residences of the rich and the open spaces where the citizen soldiery trained. But the seventeenth century saw continuous change. The city extruded its surplus, and craftsmen came out purposely to escape from gild control. Thanks to the outflow from the city and also to the growth of its own industries, namely, shipbuilding and the provision of foodstuffs for London, the population of East London grew relentlessly from about 50,000 in 1630 to 120,000 in 1730, by which time it had received a further increment through the immigration of Huguenot silk-weavers. From 1730 to 1780 there appears to have been stagnation, thanks to the gin-drinking and disease which arrested the rest of London also. Materially, however, growth was as continuous as it was disorderly, with straggling ribbon development along the high roads and a medley of population partly agricultural and partly industrial. Whitechapel by 1780 was urban and squalid: Hackney, though deserted by the

quality, was still rural and noted for its boarding schools and "country boxes"—cottages in the country, as we should call them to-day.

The main exit from East London was through Aldgate, over which Geoffrey Chaucer once lived, watching the crowd that he immortalised in the *Canterbury Tales*. The traffic which passed along the great Mile End Road (White-chapel—Mile End—Bow—Stratford) to and from London, was so severe that in the wet season of the year it became a lake of stagnant mud with deep and dangerous sloughs, and even a light postchaise could go no faster than a footpace. From early times East London had its distinctive industries. Stratford was the headquarters of the bakeries and slaughteries which supplied the City (to say nothing of its seminary for young ladies *atte Bowe*), and the breweries established at Spitalfields and Mile End in the seventeenth and eighteenth centuries were industries of the same order. Their names are still with us—Truman and Hanbury, and Charrington. Spitalfields had its silk industry: Bow its calico printing, which made scarlet cloth for the East India Company, and also a porcelain works. These by 1800 were lost or being lost to the provinces, but Bow Bell Foundry still lives—the maker of Big Ben, Great Tom and Bow Bells, which now we hear over the B.B.C.

In the first half of the nineteenth century docks, canals and railways left their mark upon the district; it was the revolution in transport rather than in manufacturing industry which immediately concerned East London. The story of the London Docks belongs to general economic history. The canal was the Regent's Canal, built by John Nash during the Regency, which, making an arm round Bethnal Green, flows from Paddington into the Thames between Stepney and Limehouse (so called because of the lime oast or kiln, which Pepys visited on 19th October, 1661—"by coach to Captain Marshe's at Limehouse, to a house that hath been their ancestors for this 250 years, close by the lime-house, which gives the name to the place.") It joined the Grand Junction Canal at Paddington, and its purpose was to move heavy traffic to and from the Midlands. Incidentally, it disbursed the monopoly of the Newcastle coal trade.

Railways followed: the first, a cable line between Blackwall and the Minories: then, the Eastern Counties, the nucleus of the Great Eastern: in 1851, the North London Railway connecting the city with Willesden: later again, the East London Railway linking the City with London south of the Thames, which incorporated the famous Thames Tunnel built by the Brunels for road traffic and opened for that purpose in 1841.

The history of very recent times is always hard to write. East London has suffered sorely from the replacement of its old population by foreigners. Old-time residents, whose wives were house-proud and vied with one another in the prettiness of their little gardens, the cleanliness of their houses, and the daintiness of their curtains, gave way to a foreign population which crowded the houses and sometimes let out by day to bakers and other night-workers the beds which they used at night. Rents mounted sharply, and the old population of city workers, craftsmen, waterside men, postal workers, moved further out to places such as Walthamstow, Manor Park, Stratford and Ilford, which are now beginning to undergo a similar change.

But the picture has its bright side. The children of the new population often showed high ability, and whereas 50 years ago children of the poor were to be found by the hundreds bootless, neglected and starved, now such poverty is not to be seen; the new population looks after its poor well; violence and brawls and the necessity for the police to parade the streets in pairs, no longer obtain. Finally East London still retains its high value as a warehousing centre, and among the biggest improvers of the suburb, a continuous improver because of its continued growth, has been the C.W.S., which in 1881 opened its Leman Street premises on the site of a public house. A friend who began service with them more than 50 years ago saw the turnover rise from three-quarters of a million to over 30, and with him I have watched at five o'clock the stream of employees issuing from the offices and warehouses of this great organisation, well-paid, healthy, talking and smiling as they went along—as East London does when it gets a chance.

The notion that a district or a country is old in the sense

of having passed its best is short-sighted and timid. We must dare to face time and think rather that we are only at the beginning of a great and limitless future. Bricks are no more than bricks. They can be pulled down (or bombed down), but if the spirit, the institutions and the pride survive, each generation will rise to better things. I remember that in the late war many of the lads in my battalion, the Second Buffs, were recruited from East London. There are no better soldiers in the world.

CHAPTER XXV

TYPES OF LOCAL GROWTH

(continued)

THE WEST MIDLANDS AND TYNESIDE

W. H. B. Court. *The Rise of the Midland Industries, 1600-1838* (1938).
Industrial Survey of the North-East Coast Area by Armstrong College (H.M. Stationery Office, 1932).

II

THE WEST MIDLANDS

We followed East London from the beginning to the present, but for economy of space I follow the West Midlands only to about 1800, and deal only with the modern history of Tyneside. This creates gaps, which in large part are filled by good books, e.g. C. G. Allen, *The Industrial Development of Birmingham and the Black Country, 1860-1927* (1929), and J. U. Nef, *The Rise of the British Coal Industry* (1932).

On a great continent, like Canada or Africa, hinterland suggests an inaccessible back-country, which must be attacked by frontier settlement. In this sense Great Britain has no hinterland. The mountains are near the coast, and the Midlands are on a fertile, accessible plateau, which was viable to foot and horse from the beginning, and for which it was easy to build roads, canals, and railways, as the turn of each came. Perhaps it is for this reason that hinterland is for us a foreign word.

Maitland taught us to appreciate the persistence of a rural flavour in the growing urbanism of England. This has as its converse the sure yet slow emergence of specialised handicraft out of peasantry. The metal industries of the Midlands were peasant industry in origin, but because of the peculiar way in which the rural population of England was either forced down into landless labouring or raised into tenant farming, her peasant industry never attained the fixity and roundness of that of Central Europe. Neither hand-loom weaving nor pottery nor nailing passed by specialisation into city crafts. Rather they expanded into an

industrial belt with heavy buttons on it, representing towns. The West Midlands consist of the Black Country to the north-west of Birmingham and outliers west and east—west, the Severn valley from Buildwas Abbey past Coalbrookdale to Bridgenorth, and east the old and famous city of Coventry. The Black Country itself is an irregular square with its four points at Wolverhampton, Stourbridge, Birmingham and Walsall. Inside it are the towns of Dudley, Wednesbury, West Bromwich and others; and this area, now a region of heavy industry, is the old home of nail-making, "the hand-loom weaving of the iron industry," as one might call it. Its rural origin was reflected in masters as well as men; for the first industrialists were no more than small enterprising farmers who combined metal working with farming. The corporate towns had no means of suppressing such industry in England, and nail-making was always notorious for the fact that it was commonly entered by unapprenticed men. In this free and spacious atmosphere growth conduced to division of labour, to specialisation of processes and finally to production by machine power. Dudley was the centre of nailing, Cradley Heath, now as then, the centre of chain and anchor-making; and there were other concentrations of handicraft. The Industrial Revolution hit them hard, and soon after 1800 the nailer was routed by the machine product; but some of the metal handicrafts put up a much longer fight. Nail-making, it seems, had always a reputation for the lowness of its earnings, but a trade is a trade, and many were born who preferred it to agriculture. Moreover, the industrial opportunity was at their very door; for South Staffordshire was rich in coal and iron, and local landowners, not surfeited with the profits of overseas adventure, welcomed the opening of iron works on their land. Thus industrial capitalism grew in the interstices of the older society. The fuel in which it was interested, be it noted, was pit coal, which was not resorted to as a *pis aller* when the forests became exhausted, but because such fuel, being in concentrated fossil form, was easier and cheaper to collect than the coppice wood of extensive woodland. The smith preferred it to charcoal as soon as the technique of handling it was mastered, which

was done in the nailing industry at least as early as the time of Elizabeth. In the early eighteenth century the Abraham Darbys applied pit coal to the more difficult field of blast furnace practice, and Henry Cort extended its range to include finished iron.

However, nail-making did not increase purely from the cheapness of its labour and the abundance of its fuel. A crucial invention, the slitting mill, derived from Europe about 1600, helped it forward greatly. The mill of two rollers slit the iron sheet into thin rods that could be forged into nails; and local tradition associates the family of Foley with its introduction. But the market was still local: it was only with the eighteenth century that transport improved and the market widened, thereby permitting a further division of labour. Then the increase in the market and the degree of specialisation called for a commercial and organising centre; and this was found not in the old town of Coventry, which lay too far to the east, but in the new town of Birmingham. It was not a particularly delectable place: it has even been suggested that its bare heath roughened the inhabitants into inventive vigour. Be that as it may, the Birmingham of 1700, though little more than a great village, was enterprising and liberal. On and around Birmingham the Huguenots had put their welcome mark, including a new glass trade. Moreover, Birmingham was happy alike in peace and war. From swords and pikes it went on to muskets and heavy ordnance. In peace its leaders were Birmingham toys, buckles, buttons, beads and a whole series of knick-knacks for the home market, the Guinea Coast, the West Indies and the American mainland. And for this light traffic the river navigation of the Stour and the Severn, supplemented by the packhorse, was adequate. It was only when the heavy iron industry developed after 1760 that canals became as necessary to the Black Country as to the Potteries, and there were no greater patrons of improved roads and new canals than Matthew Boulton and Josiah Wedgwood. London resented the Brummagem upstart and tried to repress it, but the upstart fought back and put London in its place, securing its own Assay Office in 1773, and its own Proof House for guns in

1813. Mr. H. Hamilton, in his *English Brass and Copper Industries to 1800*, shows the rôle which copper played in this growth. It was the more valuable metal on which were learnt the methods applied later to the cheaper and more abundant iron. But brass and copper did not then lose their absolute importance, and they, together with the iron-using industries, old and new, gave to Birmingham a singular variety of occupations. There was variety between metal and metal and there was combination of metals, there was variety also of industrial type—great industry serving small industry, and little men finding a ladder of steady advancement to big things. The enterprise of its citizens enlarged the variety even further; and in Book II, Ch. V of Mr. Court's book, "Chemicals and Japanning," we read about these, their origin and the type of structure which they developed. With this great variety in and around it, Birmingham assumed a fulness and stability which were lacking in districts dependent on a single industry; and its leaders were likewise broadminded. They were, in fact, the scientists of their age, and they sat at the feet of Dr. Erasmus Darwin, the great free-thinking Radical physician of the Midlands. Joseph Priestley was also of the company. The career of Matthew Boulton (1728–1809) is a worthy epitome of the development. Birmingham's central position, at a considerable remove from any sea, was only a strength if Birmingham's business life were well-organised, if in fine it turned itself into the hub of an industrial wheel; and this is what Boulton, toy-maker, artist, coiner and engineer, did for it to perfection. For he was a maker not only of material things, but also of immaterial external economies. As his partner Watt said of him, "He possessed in a high degree the faculty of making any invention of his own or others useful to the public, by organising and arranging the processes by which it could be carried on, as well as promoting the sale by his own exertions and by his numerous friends and correspondents."¹ He was equally strong as an organiser of men, and it was only natural that he should be the Chairman of the Lunar Society at which the men of industry and science foregathered.

¹ H. W. Dickinson, *Matthew Boulton* (1936), pp. 195–6.

Boulton died in 1809, James Watt in 1819; but their business did not die with them, and E. Roll, *History of the Firm of Boulton and Watt* (1930), carries the firm into the second generation. All through the nineteenth century Birmingham was in the industrial limelight alike in transport and industry, in the railway age and the automobile age, and in the transition from iron to steel and from steel to alloys. The technical reason for this was that it was a home of engineering in many forms, as well as the possessor of numerous special trades. It could not have fallen into a general decline unless the whole of England had declined with it. Boulton's old home, Soho House (Soho in his day was a suburb of Birmingham), is now, they say, a residential hotel. If the London Stock Exchange ever feels like evacuating, it might do worse than select this as its new home. For it is solid and heavily slated, and even in Boulton's day it possessed a central heating system.

III

TYNESIDE

This is a task of compression greater than any preceding or to follow, and naturally so, for here after a brief historical introduction we watch history running out into the present in an area which, equally with those of Glasgow and South Wales, paid the penalty of the sudden transition from war to peace and of the world growth of trade policies hostile to international trade. But since in the lazy years of peace defence was deemed to be of less importance than opulence, Britain's great reservoirs of defence were either left to struggle along for themselves or treated as objects of charity. I do not think any country has ever found a more lamentable way of dealing with the great problem of demobilisation than labelling great areas of itself depressed areas. I am sure, too, that the psychological loss has been great from reckoning change in terms of the unemployment register. It is a mistake of the same sort as that which the country committed in earlier days when it handled the mobilisation of industry to the Industrial Revolution in terms of the workhouse and the poor settlement.

In its fundamental rôle Tyneside is very similar to

Clydeside. Its life depends on shipping, shipbuilding and marine engineering, with the Mercantile Marine and the Navy as its two great customers. To the Clyde the Tyne is partly rival and partly complementary, but there is in their history very little of one stealing from the other. They rise and fall together; and I have sometimes thought that if there were no Scottish border and Edinburgh were the financial capital of all Britain north of the Tees, the fortunes of Glasgow and Tyneside would have been steadier and better in the last twenty years.

There are, however, between them significant differences of geography, history and present function.

Tyneside is one of several adjacent river systems, the others being the Wear, with Sunderland as its port, and the broad estuary of the Tees embracing Middlesbrough, Stockton and the Hartlepools, and together they constitute one industrial area and one complex problem. Their unity was well represented in the old days by the North-Eastern Railway, a compact and efficient territorial monopoly, since weakened by its southern elongations; and it is now expressed by NESCO, a word of as good omen on the North-East Coast, as BESCO is of ill omen in the Canadian Maritimes. NESCO is the North-Eastern Electric Supply Company which, in association with certain municipal undertakings, e.g., Newcastle-upon-Tyne, Sunderland and Darlington, supplies the district with cheap power, which compares very favourably with other regions: the cost per unit for power purposes being North-East Coast .56d.; certain Lancashire areas .75d.; the whole country .77d.¹ NESCO's territory extends as far south as York, and, indeed, there are reasons for considering that the North Riding of Yorkshire belongs industrially to the North-East Coast, as it did in the territory of the old North-Eastern Railway.

Tyneside itself is a river system not unlike that of the Thames, with prominent towns both on the north and the south side, with a great bend midway like the Isle of Dogs, and with the commercial centre well up the river, Newcastle being to Gateshead as the City of London to Southwark. Along the north from west to east run Wallsend: Willington

¹ *Survey of Industrial Facilities of the North-East Coast* (1936), p. 37.

Quay: and Tynemouth, with North Shields and Whitley Bay as its landward and seaward arms. On the south, and therefore in County Durham, are Pelaw¹ at the tip of the bend, a C.W.S. productive stronghold: Hebburn, the home of Hawthorn Leslie, the shipbuilders, and Reyrolle's, the electrical engineers: Jarrow, the site of Palmer's yard: and South Shields. Especially on the north side the bank is clifflike and thus direct contact with the waterway is easy, but it has caused industries to be squeezed into the small available riverside space, often, as in the case of shipyards, necessitating a cutting back of the high flank, itself accentuated by ballast heaps and waste dumps, representative of an earlier phase. Behind the parallel rims of industry, which flank a waterway that has been under constant improvement, exist belts of housing, not always continuous, and considerably congested. The growth both of industries and housing has been haphazard, and the whole area is broken up into a series of local authorities. A single authority, such as was recently proposed, is badly needed. When I last steamed out of Newcastle Central and saw the posters of the inland Team Valley Trading Estate, I could not (remembering the dreary, untidy line of houses through which I had just passed from Hebburn to Newcastle) help feeling that after 1920 the great outlay of money should have been on the re-housing of Tyneside on a scale worthy of its busy past and imminently busy future. It was a crime of irresponsible rationalisation to turn Jarrow into an economic cemetery.

The history of Tyneside has been determined by coal and the ancillary industries, constructional, chemical and mercantile, which coal brings. Among constructions the most important, naturally, was shipbuilding, itself to a large extent an assembling industry; for the shipbuilder assembles in his yards the finished products of many other industries—the steel-rolling mills, the foundry, the

¹ The Pelaw advertised on many Co-operative Store windows is a productive cluster not so compact as Shieldhall, Glasgow, but nearly as varied, comprising cabinet-making, clothing, drysaltery, printing, quilt making and tailoring. The prime factor in location was the port, a second was the co-operative policy of supporting with productive works strong consuming areas, among which none is more active and loyal than Tyneside and its mining hinterland.

forge, the coppersmith, the engineering industry and so on. The Tyne taps the longest used section of the Northumberland and Durham coal-field, and the loading staithes belong to the L.N.E.R., the Tyne Improvement Commission and various private concerns. These points of coal export also import timber, which is a natural return freight, coming mainly from the Baltic.

Shipbuilding originally took the form of small wooden colliers. Iron ships were built as early as the 40's, but the first screw collier, the *John Bowes* of 1852, built to the design of C. M. Palmer, marked the development of the Tyne as a centre for iron ships. Though the Tyne is capable of building the largest naval and mercantile units, its strength, like that of its sister ports, has been in the building of the moderate-sized cargo boat. Latterly this has specialised into the special purpose ship and particularly the oil tanker, which is merely a fuel-carrier of another sort. In the seven years preceding the Industrial Survey of 1932, the North-East Coast built nearly two-thirds of the tanker tonnage launched in this country and very nearly one-third of that of the world; and in the building of tankers the North-East Coast far outstripped the Clyde, just as the Tyne outstripped the rest of the North-East ports.

It was, of course, impossible for Tyneside to wait passively for re-armament. It endeavoured to introduce certain of the lighter industries which were so flourishing in the south, industries which in general employed much automatic machinery and little skilled labour. It is in a sense fortunate that the skilled labour of Tyneside was not gradually whittled away into this class of work; for shipbuilding and armament are not industries in which automatic machinery produces the required results (I remember seeing on the Hudson River some hundreds of these automatic products rotting in uselessness). Figures from 1913 onwards show that the percentage of skilled men employed in shipyards has remained fairly constant. The output of tonnage per man employed has increased markedly, and it has been due in the main to better organisation in the yards, to the employment of more machinery in association with skilled labour and to the great effort that a loyal labour force has made to pull

through the bad times. Moreover, on the North-East Coast generally there is much ship-repairing, which does not lend itself to standardisation. Finally, all reports of recent years on Tyneside point with pride to two notable engineering firms which, though indirectly (in one case) connected with shipping, go far behind it and beyond it. These are A. Reyrolle & Co. and C. A. Parsons & Co., and their story is one of the most satisfying in recent industrial history.

A. Reyrolle, of French descent, first decided to make switch gear in his little workshop at Tottenham, where he worked out the fundamental ideas and basic policy which eventuated in the present metal-clad switch gear. He had begun to sell switch gear even while in London, and so when the lease of his buildings there ran out he was faced with the problem of finding a new site. Influenced by the fact that orders might be forthcoming from the North-Eastern Electric Supply Company, he came up to Hebburn and converted his business into a limited company. Work was begun for Carville Sub-station, Wallsend (the first metal-clad switch being put into commission 1906), and with this initial impulse the firm got under way. Though a few subsidiary products were manufactured at first, these were soon abandoned in favour of the central commodity, switch gear, and even the jig and tool department, which for a time accepted work from outside, quickly became absorbed in work for the firm's exclusive internal use.

From a small business supplying local needs Reyrolle's grew into a large business with a world-wide market. The rapid growth of sales was due to two things: (1) and foremost, the birth of commercial electricity, and (2) the careful design of the product itself. In the last 50 years the generation and transmission of electricity have advanced at an ever-increasing rate, and therewith the problems that inevitably attend on rapid progress. Metal-clad switch gear was found to be eminently suited to meet new complexities because, even though the gear might break down in service, by its design the operator, while handling it under normal conditions, was rendered immune from electric shock. Perfect safety of the operator and uninterrupted transmission

to the customer has been the double purpose. Careful development of overseas markets confirmed the good name won in England, and Reyrolle's switch gear has been installed in Australia, Canada, India, South Africa, France and elsewhere. By the continued supply of a product of outstanding excellence the firm has grown so much in the last ten years that the factory itself has been more than trebled in size and the number of workers more than quadrupled.

It would be far beyond my capacity to do justice to Sir Charles Parsons. He was trained at Elswick, served for two years (1881-83) with Kitson's of Leeds, and returned to the district where he had served his apprenticeship, at a time when his mind was already at work on the turbine and its possible application to marine propulsion. Initially at Clarke Chapman's (Gateshead) and later on his own account (at Heaton between Newcastle and Wallsend), Parsons worked on the "reaction"¹ turbine until he had overcome the major difficulties; and as mentioned already (p. 125), the Admiralty after 1897 began to fit them into its ships. Parsons, however, being a great scientist, was interested in other branches of engineering also, and chief among these was the commercial application of Faraday's magnetic flux laws; and so side by side with the steam turbine grew up the electrical generator, for on the development of the former rested the motive power of the generator itself. The problems of electrical generation were legion, but the fundamental practical basis was in time found; and though only now the theoretical reasons for certain constructions are being ascertained, Parsons with his unerring instinct always found the correct practical solution. Hard on the heels of the electrical generator came the transformer, a necessity for economical supply and transmission. Thus in a short space of time there grew up on Tyneside two firms which were capable of dealing with every form of electrical transmission except cable work. After the death of Parsons in 1931 Reyrolle's secured an interest in C. A. Parsons & Co., and this was followed by a commercial merger under the name of Parolle.

¹ "Reaction," to distinguish it from the purely impulse turbine of the De Laval type.

There is a sense in which for several years past there has been no unemployment on Tyneside: that is to say, no unemployment of skilled men. To-day they are worth their weight in gold; and if at the termination of the war a large amount of skilled labour is again threatened with long unemployment, it will be a crime if we allow it to rot or leave. It would be better to withdraw every aid and subsidy to coalmining, housing, old age and even agriculture itself, than to allow harm to come to the ultimate wealth of a seafaring country, the skilled men who make the ships and handle them. If this is not true, then the economic history of England and Scotland since 1700 is one long lie.

CHAPTER XXVI

THE DISTRIBUTION OF THE INDUSTRIAL POPULATION

(with *Supplement*)

Royal Commission on the Distribution of the Industrial Population, Report and Appendices (1940).

Memorandum to the Royal Commission by the Board of Trade on the Distribution of Industry (1937).

The order in which these newly published documents should be studied is as follows:— First, Appendix II to the Report by a member of the Commission, Professor J. H. Jones. This contains a theory of location and is of equal importance to the historian and theorist. Secondly, the Board of Trade Memorandum. This, as printed, is more than a memorandum, for the Commissioners examined the Board of Trade witnesses on it. However, it is the questions asked and not the further answers given which carry the points further than the Memorandum itself. For the Board viva'd badly. Thirdly, the Report itself, which is divided into four parts: (1) Economic considerations; (2) social and strategic considerations; (3) allied matter, such as the future of the population and town planning; (4) remedies for maldistribution, and recommendations.

The conditions under which the Report was framed were peculiar. Its publication was delayed by the outbreak of war. While the Commission was sitting, the possibility of war and the vulnerability of London to aerial attack became apparent, and thus a further reason presented itself for discouraging the concentration of population in the metropolis. But it must have been apparent to the Commissioners as they drafted their Report that the Distressed Areas, which have loomed so largely in the public mind in the recent depression, were becoming boom areas, and that the evacuation of London might eventually make it a distressed area. And since London, in the sense of Greater London, comprised in 1937, 18·8 per cent. of the population of Great Britain, this would be a very formidable fact.

Chapter XIV on London, and the many incidental references to it, are very good, presenting in authoritative form a most important chapter of English industrial and social history since 1918.

Where the Report is weakest is in its opening historical chapters. It makes sweeping statements with a bias of "meliorism," such as § 25 on the world phenomenon to urbanisation. For, commenting on "the astonishing expansion of the nations of the Western civilisation" in the last two centuries, it says: "There is authority for the estimate that the increase in their number [*sc.* of people of European descent] since 1800 has amounted to about 400 millions, while that of the rest of the world has probably not been more than 200 or 300 millions." This is both doubtful and misleading. In India alone the population has risen to 400 millions from 100 millions, or a little more, in 1800. Moreover, in Europe itself, as may be seen by consulting the chart in the essay of Mr. Carr-Saunders on *The Growth of the Population of Europe*,¹ the striking increase is not among the western nations of Europe but in Russia, whose population grew from 40 millions in 1800 to 110 millions in 1900. The Report, § 26, in the same vein continues: "This decline of the death rate (*i.e.* in Great Britain since 1760) was largely attributable to the Industrial Revolution itself; that Revolution removed two great positive checks which had been operative in greater or less degree until that time, namely, inadequate subsistence and the heavy incidence of disease due to the lack of proper sanitation—sanitation which the growing wealth of the towns was in the succeeding years to provide." This sweeping statement gives a reference to Clapham, Vol. I, p. 55, which in no way supports it; and I suggest that if the members of the Commission had been presented with the opposite statement, namely that the Industrial Revolution did more harm than good as far as sanitation and living conditions were concerned, they would have signed a more probable statement. Later on the Report contains a sentence which is merely silly. "If there were no means of transport people would be compelled to supply their own needs, and if they lived in settled

¹ *European Civilization*, ed. Eyre, V, 341.

communities those communities would need to be small and self-supporting." (§ 60.) A settled agricultural community is a relatively advanced form of economic life. It is inconceivable without means of transport on the farm, and therefore there must be the means of transport to and from the farm. And it is misleading to say that before the factory system had been established, Great Britain was mainly an agricultural country (§ 63). She was also, and more so, a commercial seafaring country, and this was the respect which distinguished her from continental countries, to which the remark would have been relevant.

As historians, let us turn now to the Board of Trade Memorandum. It is strong on coal and the heavy industries and recent miscellaneous industries, but irritatingly weak on the textile industries, which present the most delicate problems of location. The Board of Trade does not seem to possess in its library either Wadsworth and Mann, *The Cotton Industry and Industrial Lancashire 1600-1780*, or Heaton's *Yorkshire Woollen and Worsted Industries*. Instead, it quotes from Chapman's *Lancashire Cotton Industry* of 1904 and an Economic Journal article by Dr. Clapham of 1910; and while a lowly textbook writer is intrigued to find his textbook quoted for evidence on the pottery industry and the Rossendale slipper trade, it would surely have been better to quote the standard authorities on which the textbook confessedly leans.

Relying on Professor Chapman (and the Report makes this worse by repeating it, § 72, with the Memorandum as its reference), the Board of Trade says, p. 52, that the cotton industry "settled in Lancashire for no particular reason except perhaps that the woollen industry was already there, that foreigners were kindly received, and that Manchester was not a Corporation. Had Manchester been a Corporation, it is likely that aliens would have been discouraged by the economic favour accorded to freemen." With Chapter I of Wadsworth and Mann before him, Sir Sydney Chapman certainly would not say this now. For this chapter shows how Lancashire, beginning as an outlier of Yorkshire's old-established and naturally endowed woollen industry, turned from rough woollens to the manufacture of cotton

brought to its ports by the Turkey merchants from Smyrna and other ports of Asia Minor. The access to the sea was decisive from the first: it would have been a miracle if the cotton industry had arisen in the Midlands. Again, Mr. Heaton's first chapter proves beyond doubt that the Yorkshire woollen industry was stage two of Yorkshire's evolution as a wool-producing county, and that the woollen industry was well established on a district basis before the arrival of the Flemings. "The Flemish element in this county was small and exerted little influence. In York the aliens came to swell a rising tide, but in the wide rural area over which cloth was being made their influence was negligible."¹ The Memorandum would have spoken more wisely if it had traced the way in which the senior industry of England gradually lost its old ubiquity till it became concentrated mainly, but not exclusively, in one county. When the step-by-step process of concentration is studied, the element of accident altogether disappears.

The Memorandum also sins from omission. On p. 50 it presents a list of the concentrated factory trades of Great Britain, beginning with cotton in Lancashire and District and ending with jute in "'the rest of Scotland' (in fact, the Dundee area)." But, although Dundee, with its exceptional reliance on a single yet modern trade, is of peculiar importance to the student of localisation, there is no further mention of it.

The material for a clear answer is fortunately available in the papers of Mr. Dennis Chapman (*Review of Economic Studies*, October, 1938, and the British Association's scientific survey of Dundee and district, Dundee meeting, 1939). Dundee was the centre of the old linen industry of Scotland, a port in contact with the Baltic from which flax came, and actively engaged in shipbuilding and overseas commerce. When in the early nineteenth century the higher grade of linen production became less profitable, Dundee turned to the use of cheaper raw materials, first to tow, a by-product of flax, then to sunn hemp (sunn being an Indian word for hemp) and finally to jute, which came from Calcutta, where it had long been in use. As Dundee, relatively to England and Ireland, was the centre of coarse

¹ H. Heaton, *op. cit.*, p. 20.

linens, the natural centre for treating the coarsest product of all was Dundee; and the town had the further advantage that the whale oil required for softening the fibre could be furnished by the Dundee whaling fleet, which in the 1830's was in need of a new outlet. Furthermore, the west of Scotland was not tempted to compete, because it had the cotton of the United States as the raw material for its textile speciality, though even this was to dwindle in importance as shipbuilding and engineering became relatively more profitable. It is, perhaps, risky to ascribe the rise of the industry to the enterprise of its merchants and manufacturers, because researches such as those of Mr. Chapman ground it clearly on technological facts, but it is relevant to observe that Dundee had the financial and commercial contacts which were necessary to obtaining a wide market for a product which was in demand as bagging material in the American cotton industry and the carrying trades. It had the British Linen Bank and the Dundee Banking Company, both of old foundation; and when its merchants in the 1850's began to erect jute mills in Calcutta, they were operating on terrain which had been thoroughly prepared by the numerous Scotsmen in the commercial houses of Calcutta. Finally, as students of finance are aware, Dundee is the home of the investment trust of the Scottish type, and this was a logical continuation of the accomplishment in jute; for the investment field was the United States, whither much of the product went. Mr. Chapman will not allow that the manufacturers showed peculiar enterprise in introducing the new fibre. They were, he says, shy of it at first, in spite of pressure from the East India Company and the British Government, which feared an interruption in the supply of Russian flax. But he also points out that the linen trade regulations made it impossible to use any East India fibre as an adulterant until 1823 and that when the manufacturers took jute up seriously, they were quickly successful in mastering the new technique. For it was only a short step beyond what they had already done in tow and hemp.

The present interest of Dundee is connected with the war demand for sand-bags, etc. Before 1939 Dundee only handled one million bales of jute as against Calcutta's six, and it

is the opinion of Dundee that, with its higher wages and better conditions, it cannot compete with the cheap labour of India. Is there a possible switch, e.g. to sisal? Could Dundee in the interest of national defence be guaranteed a quota of the home consumption in time of peace? Textile industries the world over tend to leave the consuming centre for the region where the fibre is grown. When, as in the United States, the transfer is within the country, it need rouse no national concern. But it is a different matter when the transfer means the loss of the industry altogether. Manchester and Dundee should be studied side by side. The Manchester area found relief from foreign competition partly in the switch to rayon, but mainly in the development of engineering industries. In the latter development the Manchester Ship Canal played an important part; and one wonders whether a Clyde-Forth Ship Canal, which the late Professor Scott took very seriously, would not yield to the east coast of Scotland, including Dundee, the kind of advantage which Lancashire reaped from the Manchester Ship Canal.

The main evidence of the Board of Trade Memorandum I mention only to commend; and as the chief questioner, Professor Jones, is himself an authority on the heavy industries, the questions and answers in this field are of unusual interest. There is a section on p. 73 dealing with heavy chemicals, with a footnote reference to a publication *The Centenary of the Alkali Industry, 1823-1923*, issued by the United Alkali Company, which we shall all wish to obtain.

I return now to Professor Jones' appendix, to stress the important points:—The distinction between the location of new industries and the concentration of old: the distinction between the forces determining the regions in which an industry is established, and those determining the particular localities within the larger region, in which the industrial establishments are erected: the importance of female labour when the existence of male employment creates an available female force: the relation between transport facilities and industrial concentration. In regard to female labour I recall two interesting examples of Professor Jones' point.

One of the reasons inducing Lord Leverhulme to build his factory at Port Sunlight was the large female population belonging to families engaged in commerce and dock work in Liverpool. Again at Corby (the new town created north of Kettering by Steward and Lloyd's), when Kettering Co-operative Clothiers were considering recently whether they should enlarge their Kettering factory, they decided finally to open a branch factory at Corby because of the female force available there. They considered it better to take the works out to Corby than to bring the women in by motor bus. Professor Jones has also a notable section on railways (p. 255). Constructed first to link up existing populous centres, they exercised a profound influence upon the distribution of new population until the end of the first decade of the twentieth century. "Moreover, the influence of railway junctions was greater than that of other parts. . . . A railway junction gave the surrounding district a high 'nodality.'" (p. 255.) Incidentally in certain cases the junction became a considerable railway town, e.g. Crewe and Swindon.

Coal locates itself, but shall the ore go to the fuel or the fuel to the ore? There is a pull both ways, in which relative content of ore and fuel, availability of railways, and markets all play their part. To an increasing extent Great Britain depends on imported raw materials: Spanish iron ore, Malayan tin, Canadian wheat. This is a factor making for the concentration of the steel or flour mills on the coast. Conversely the electric grid is a force making for decentralisation and more equal distribution over the interior. But one ancient force is still at work, the presence of specialised skill. This I realised very clearly when visiting recently the Coalbrookdale district of Shropshire, the very cradle of the Industrial Revolution. Both its ore and its coal are imported, but happily for it, it has just above Ironbridge a great power station, and being situated in the west, it is in the region of new activities consequent upon the war.

Professor Jones at this point allows himself a comparison with Canada, which misconceives the Canadian industrial scene as well as the sequence of Canadian economic history. He talks of "hunting" the beaver, of timber being exported

for newsprint, "while the main development took place later, when the transcontinental railways opened up the vast wheat areas of the central plain" (p. 261). But newsprint is a modern use of lumber, and he should mention before the wheat era the opening up of the Canadian East by the timber and wooden ship-building trades. He speaks of Montreal and Toronto as "close to the heart of agricultural Canada," but Toronto is separated by a thousand miles from the eastern edge of the Canadian prairies, and these two towns are only close to the heart of agricultural Canada if by agriculture he means the dairy produce of Ontario and Quebec, which, indeed, of late years has been more valuable than the western wheat crop. The only sound point in this section is the rather obvious one that timber and agriculture require a large space for their growth. But so also do the sheep and grazing cattle of the United Kingdom. Canadian industrialism is not a development which can be explained in terms of collecting and distributing centres growing through fiscal protection into manufacturing areas. The keys to it are: (1) the minerals of the Laurentian Shield; (2) the marvellous wealth of adjacent water power, giving power costs which are notably below those of the United States themselves. In view of the definitive historical work which has been done in this field within the last ten years by Innis, Glazebrook, Creighton, Lower and others, it is indeed a pity that Professor Jones should have cared to perpetuate inside the pages of a Royal Commission Report the impressions which he brought back with him from his visit to the Canadian Maritimes. Even for the Maritimes his history is impossible. According to him Halifax became an important centre of population because it was a centre of collection and trans-shipment. This is not so. Halifax owed its importance to the codfisheries and to its position as the apex of a trade triangle in the West Atlantic. Halifax and other towns of Nova Scotia, like those of New England, grew and flourished because of the sea which beat upon their shores and not because of the land behind them. I am not here putting a lonely point of view, but one which is shared by every serious student of Canadian economic history.

SUPPLEMENT ON TEXTILE INVENTION

At this point in the course, following upon the discussion of localisation in the textile industries, a lecture was given by Mr. E. I. Lewis on Invention, which, as it consisted of an exposition with the aid of models and photos, cannot be reproduced here. The lecturer, after referring briefly to the development of the metal bow-drill, the drop-hammer and Tull's sowing drill, explained in detail the evolution of spinning, i.e. the conversion of the loose sliver of combed or carded fibre into yarn.

Stage I. Spinning by the aid of thumb and finger from the distaff (i.e. the stuff-stick).

To begin with, spinning was wholly hand work, the sliver being drawn out and twisted by the same thumb and finger. Then a weight was fixed to the spun end of the yarn, to prevent untwisting and permit the production of greater lengths. Next the weight took an active part as a twisting agent, being actuated by taps from the hand or knee. The weight was now a whirling thing, or "whorl," which by elongation became pear-shaped, and finally rod-like, till it was the spindle as we know it. When the spindle in the course of spinning had nearly touched the ground, the yarn was unnotched and wound upon the spindle shaft, which thus took on the reeling function. When the shaft was full, it was ready for the weaver. By attaching to the spindle detachable discs (circular weights) yarns of different fineness could be spun, the lighter the disc the finer the yarn.

Stage II. Spinning by the aid of a hand wheel—the Great or Jersey Wheel; and the Little or Saxon Wheel.

The introduction of a driving wheel was a big step forward. The spindle now was actuated by the continuous pull of a cord about a pulley, which took the place of the disc, the spindle itself being given a horizontal position and losing its weight function. By alternative spinning and reeling the spinner filled her spindle, which was then reeled off on to another reel for the weaver's use. The Great Wheel appeared in India about a thousand years ago, and though not very widespread elsewhere, it found a home in the Celtic West. This was the wheel which Hargreaves in 1767 adapted to his Spinning Jenny, one of the first mass-

Meanwhile, by 1738 Wyatt and Paul had eliminated the use of the finger and thumb for drawing out the sliver by substituting pairs of small rolls. In his Mule of 1779 Crompton combined these rolls with Hargreaves' Jenny, and it was later adapted to machine power. Feared for its speed 150 years ago, it is under challenge by progressive spinners, who champion ring-spinning, now that this has been made capable of fine as well as coarse spinning.

Ring-spinning derives from the Saxon wheel, which was known to Leonardo da Vinci but is generally attributed to Jürgens of Brunswick (1536). It spread rapidly over the world. Its novelty consisted in the "flier," a mechanical substitute for the twisting finger and thumb, shaped like a spur or a bird's merrythought. It is mounted so that its whirling arms revolve about the revolving spindle. As long as the speeds of the flier and the spindle differ, both twisting and winding take place. The more the speeds differ, the greater is the degree of twist given to the yarn. The driving wheel was usually operated by a pedal, thereby giving greater freedom to the spinner for drawing out the sliver.

It was this flier and spindle action which Arkwright in 1768 incorporated with Wyatt's drafting (i.e. drawing out) rolls on his "water frame." When he caused the now erect spindles to rise and fall within the circuit of the flier arms, he made spinning continuous up to the capacity of the bobbins on to which the yarn was wound. These bobbins were fixed on the "spindle," which it would be better now to term "axis," since axis and bobbin together equal the spindle of the hand wheel or of pure handicraft. Two alternatives to the flier machine were developed in America in the 1820's —the ring and the cap spinning machines, but they depended on the same principle as the flier.

So much for detail. The thesis underlying it the lecturer expressed thus:—"Every definite step seems an equally definite and deliberate act of invention by some great man or woman rather than, as customary teaching implies, the accumulation of a multitude of almost imperceptible advances which the fibre rather than the sentient spinner directed." And he concluded by urging visits to the Science Museums of London and other towns.

CHAPTER XXVII

THE EXPORT OF CAPITAL

Export of Tools and Machinery. Parliamentary Paper, 1825. V.

C. K. Hobson. *The Export of Capital* (1914).

L. H. Jenks. *The Migration of British Capital to 1875* (1927, re-issued 1938).

I

Whatever be the definition of capital, it embraces tools and machinery, and it was in this limited and simple form that the eighteenth century envisaged the export of capital and made it the object of public policy. That policy was one of discouragement and prohibition, which persisted into the reign of Victoria.

The ban on the export of tools and machinery rested on a simple principle, the exclusion of the foreigner from the secrets of machine production, and it was accompanied by a ban on the emigration of skilled artisans. Jonas Hanway, the umbrella philanthropist, who combined homily with philanthropy, taught his apprentices:

One of the greatest crimes in your rank of life is when artificers or mechanics first do mischief at home, and then go over to other countries and teach the people who are or may become our enemies, those arts by which we live and prosper. This is like stabbing your father, or plunging a dagger into your mother's breast.¹

There was a spate of prohibiting legislation in the 1780's, both in the textile and in the metal trades. The Tools Act of 1785 prohibited the export of tools and engines used in the iron and steel trades and led to a conflict of interest between the big ironmasters, who desired to export to the whole world, and the finishing trades of Birmingham, who wanted freedom of export for their own products, whether tools or finished goods, only. In 1824, through the impossibility of enforcing it as well as through its obviously unjust nature, the ban on the emigration of artisans was removed; and Huskisson desired to withdraw the ban on the export of machinery also. But the cotton people would have

¹ J. H. Hutchins, *Jonas Hanway, 1712-86* (1940), p. xx.

none of it, and the prohibition was continued in a modified form until 1843.¹ Owing to the great expansion of the machine-making industry there was now no possibility that free export would result in a scarcity of machinery for home manufacturers. Two years later, 1845, as part of his tariff programme, Peel abolished the export duty on coal, which he had imposed for revenue in 1842. Machinery and coal were henceforth free, and these in conjunction with railway engines and track material were a distinctive feature of the export trade for the rest of the century. To these was added an associated export of ships built and engined in British yards, old ships being often sold to make way for new ships embodying the latest improvements. In this period Great Britain made no attempt to control the course of foreign investment. She attached no compulsion to foreign loans. A great part of them was in fact spent on English goods, which thus entered the export trade, but the borrowers placed their orders where they pleased. That they normally spent them in England was due to her great strength in industrial production. It would not, however, be true to say that British manufacturers had no political advantage. India and the Crown Colonies did their business through London. And the Agents for the Crown Colonies, who handled the colonial loans, naturally placed the contracts with British firms.

Between 1850 and 1913 coal provided a new and distinctive export of importance. Coal is quickly consumable, but it is the fuel of industry and commerce, and it played a crucial part in providing bulk for outgoing tonnage and in supplying the mercantile marine in the age of the coal-fired steamship with bunker coal stored at points overseas. The trade, however, was not regarded without anxiety; for it involved the consumption of a wasting national asset, and it was not like textiles and goods of iron and steel the embodiment of much industrial skill.

II

For "export of capital" in the statistical sense we have two outstanding books, that of Mr. Hobson, whose book

¹ See above, p. 56.

fixed the concept in economic literature and is the taking-off point of most of the discussion about it; and that of Mr. Jenks, who weaves political and social judgments into his economic sections.

Inevitably to the general reader and also to the economic historian, who study the issue as it presented itself to the eighteenth century, "export of capital" suggests the despatch of durable capital goods from this country to countries overseas. But in the above books and in the use which Dr. Clapham makes of these in his standard history, it means only growth of foreign investment. When foreign investment is increasing, export of capital is positive: when it is decreasing, export of capital is negative. If the concept was used in substantive form only, difficulty might be avoided by writing in hyphens "export-of-capital," but all three writers will talk verbally of capital flowing abroad or returning home, and then we may easily forget what nevertheless we must not forget, that they mean only, by capital flowing abroad, that foreign investment is growing, and by capital returning home, that foreign investment is declining. In an earlier lecture I used export in a metaphorical sense to embrace the export of enterprise with its accompaniment of discovery, and I think it throws light on our difficulty here. For I suggest that in the statistical explanation of the balance of payments an insufficient space is accorded to mineral discoveries and the consequent increase in the value of foreign investments, as these are valorised. The valorisation amounts to an export of capital, and yet may have no coincident connection with a dispatch of goods in any form from this country. Thus Dr. Clapham, after a paragraph which points out that the export of capital and capital goods did not precisely correspond over a period of time, says:—

All that can be said with perfect accuracy are the economic commonplaces that British foreign investment was covered, over a period of years, by British export of goods and miscellaneous shipping and commercial services: . . .¹

Now, if this means that British foreign investment is *fully accounted for* by these items, it is untrue, because it omits

¹ *Economic History of Modern Britain*, II, 236.

specific reference to the discovery of mineral properties and their valorisation. As Dr. Clapham and others have recognised, the 1870's was a crucial period in the subject which they are discussing. It was also the period when continental penetration was proceeding apace and resulting in important discoveries of natural resources, the diamonds of South Africa and East Indian tin for example, but not (for the moment) of gold. That is to say, it embraced natural resources making for a lower level of prices but not the one natural resource which makes for a higher level. The Kimberley diamond field illustrates the point well. It was opened in 1871, and in 1881 consisted of 71 companies, operating four groups of mines, and of a few outside ones. In 1888, Kimberley Central and De Beers were amalgamated by Rhodes, and the whole field ultimately came under the control of himself and his associates in De Beers Consolidated. Now, in 1881, inside six months, companies with £8 million of capital were floated, but this large sum was not subscribed in cash. More than half represented vendors' and promoters' scrip, against which the South African Banks made advances. In *Capital Investment in South Africa* (1937), p. 64, Professor Frankel concludes that between 1871 and 1886 the diamond industry was financed in part by itself and in part by credit inflation inside South Africa. The amount of capital goods, whether in machinery or stores, that came out from England for the development of the diamond mines is not known. The machinery was of small importance, for diamond mining requires little, and imported stores cannot have been great. Ultimately, the diamond mines and the gold mines which followed them did lead to the despatch of durable capital goods, and this in the form largely of railway material. The export of capital goods, however, was not the cause of the mining fields, but the consequence of them. For the mines provided the paying traffic of the railways, and the taxation of the mines financed the borrowing programme of the Government. The London investment market specialised itself to the service of South Africa because of the high security which her mineral wealth offered.¹

¹ See above, pp. 43-4.

Thus the discovery and consolidation of the diamond industry, which for Rhodes and his associates meant the acquisition of fortunes, increased the total of foreign investment and was therefore an export of capital, but it was an item not very different from a war indemnity—something for nothing. If England in the 1870's had secured a large indemnity in the shape of ex-enemy assets, it would have constituted an increase in her foreign investments and therefore an increase in "export of capital." Yet I think that the three writers mentioned above would hesitate to say, as in consistency they should, that in these years there was a notable export of capital from England.

I turn now to the examination of the two central tables in Mr. Hobson's book.

TABLE I, Hobson, p. 197
(Millions of £)

Year	Shipping Earnings, etc.	Commission Insurance and Banking Charges	Government Services Remittance, and Old Ships	New Ships	Total of Columns 1, 2, 3, 4	Excess of Imports	Balance of Capital and Interest Transactions
1870	39·5	11·0	6·0	1	57·5	69·8	+12·3
1871	50	12·0	6·2	1	69·2	51·7	-17·5
1872	51	15·5	6·4	2	74·9	39·4	-35·5
1873	60·5	17·2	6·6	3	87·3	65·0	-22·3
1874	57·5	14·6	6·8	2	80·9	79·9	-1·0
1875	53·5	13·5	7·0	1	75·0	98·0	+23·0
1876	56	11·8	7·2	1	76·0	125·9	+49·8
1877	55·5	12·7	7·4	1	76·6	139·5	+62·9
1878	57·5	13·6	7·6	2	80·7	129·0	+48·3
1879	52·5	11·3	7·8	3	74·6	109·8	+35·2
1880	52·5	13·3	8·0	3	76·8	122·2	+45·4
1881	49	14·8	8·2	5	77·0	94·3	+17·3
1882	51·5	16·8	8·4	5	80·7	108·9	+28·2
1883	54	15·8	8·6	6	83·4	122·3	+38·9
1884	50	13·6	8·8	4	76·4	92·4	+16·0
1885	46	12·6	9·0	2	69·6	99·7	+30·1
1886	45·5	12·4	9·2	2	69·1	80·3	+11·2
1887	46	13·5	9·4	3	71·9	82·6	+10·7
1888	52·5	14·3	9·6	4	80·4	88·4	+8·0
1889	62	16·0	9·8	9	96·8	114·0	+17·2

In Table I it will be observed that in 1871 the balance of capital and interest transactions between the United

TABLE II, Hobson, p. 204
(In Millions Sterling)

Year	Estimated Income from Abroad	Balance of Capital and Interest Transactions	Export of Capital
1870	44·0*	+12·3	31·7
1871	46·0*	-17·5	63·5
1872	48·0*	-35·5	83·5
1873	50·0*	-22·3	72·3
1874	52·0*	-1·0	53·0
1875	49·5	+23·0	26·5
1876	46·5	+49·8	-3·3
1877	47·5	+62·9	-15·4
1878	47·0	+48·3	-1·3
1879	47·3	+35·2	12·1
1880	49·5	+45·4	4·1
1881	50·5	+17·3	33·2
1882	52·5	+28·2	24·3
1883	55·8	+38·9	16·9
1884	57·0	+16·0	41·0
1885	64·0	+30·1	33·9
1886	73·0	+11·2	61·8
1887	77·5	+10·7	66·8
1888	82·5	+8·0	74·5
1889	86·0	+17·2	68·8

* These figures are assumed.

Kingdom and other countries changes from plus to minus, and in 1875 back again to plus. Mr. Hobson explains what this means:

When there is a negative quantity in the last column, it is to be inferred that the United Kingdom is sending abroad more capital and interest than is being received; when there is a positive figure, new foreign investments, plus interest payment to foreigners, are smaller than imports of capital from abroad, plus interest from abroad.¹

Mr. Hobson points out that foreign investments in England are small and the payments of interest to foreigners (he is writing before the late war) correspondingly so, and therefore he assumes that new foreign investments in the United Kingdom offset interest payments of capital already invested here. It follows that the final column in Table I, when it is a plus sign, represents the excess in the interest brought home over the amount of new capital invested abroad: and when it

¹ Hobson, *op. cit.*, p. 196.

is a minus sign, a deficiency in the interest brought home below the amount of new capital invested abroad. The minus sign is relatively rare, and is evidence of a strong efflux of capital. But the plus sign does not signify that foreign investment was declining. To detect this we must consult Table II.

Table II shows that the export of capital moved from positive to negative in 1875–78; and that after 1880 it again became highly positive, though not more so than between 1870 and 1875.

The phenomena of the early and late 1870's are correlated, and their interpretation requires circumspection. One explanation, certainly untrue, is that Great Britain in 1876 suddenly lost her export market and suddenly recovered it in 1879. Two points, certainly relevant, are the following:

(1) The severe American crisis of 1873 (which incidentally prostrated the Kimberley diamond industry and gave Barney Barnato, the gallant little boxing clown, the chance to barter his way into the ownership of diamond mines) made English commercial houses anxious to call in realisable assets, but at the same time diminished the income from American investments. These two forces would work in opposite directions, and the inference from the capital interest transactions of Table I is that in 1874, after the crisis had broken out, Great Britain either could not, or did not choose to, bring resources home. Perhaps she was picking up properties cheaply in America at this point.

(2) Table II shows that in 1876, 1877 and 1878 Great Britain's aggregate of foreign investments was declining in value. It cannot mean that fixed property was being brought home physically; for that is impossible. Presumably it means that British investors, preferring to have resources at home, caused or allowed more of their foreign investments to come home and less to stay abroad than either before or after these years.

Putting Tables I and II together, we may conjecture that the following sequence was at work:—1871–74, heavy increase in foreign investment; 1876–78, absolute but limited decline in the aggregate of such investment; 1879, a revival of it, as overseas investments recovered their earning power.

In one great English industry, agriculture, we know that after 1875 there was an enormous increase in foreign competition, consequent upon the frontier conditions under which wheat land was farmed and the decline in transport costs by land and sea. This competition in twenty years (1875-95) halved the capital value of agricultural land at home. At the same time the severity of domestic and foreign competition in iron and steel reduced the profitability of heavy industry in Great Britain. And the two forces acting together contributed to the depression of the 1880's. Mr. Jenks (who is only concerned with the statistical aspect incidentally) takes an easy cut through the problem of the 1870's. He supposes that about 1870 Britain came to an end of her investible surplus—the surplus of the railway-building age. After 1870 "to pay for all this wheat and bacon without disturbing the harmonies, it was necessary to export a great deal more manufactured goods or earn more in shipping freights. And precisely when she needed to do so, England found that she could not increase her exports."¹

I suggest that this misses the point. The plight of British agriculture was due to the fact that foreign foodstuffs were obtained with *disastrous ease*. It was barely necessary to pay anything for them, apart from the ocean freight, which accrued to British ships; they were almost an indemnity. Consequently in the 1880's, to meet this embarrassment of surplus from the New World, which called for little offset by British exporters, new ways of employing it abroad had to be found; and among them perhaps the most important were the equipment of South America, Canada, British Africa and the Further Indies with docks, railways and other permanent works. Among the industries which these overseas developments stimulated in Great Britain were the manufacture of submarine cables, of mining machinery, and of harbour and railway equipment for the non-industrial countries, in particular the Argentine. Thus Great Britain capitalised overseas the resources which accrued to her from overseas.

This constant moving on of capital enterprise was not

¹ L. H. Jenks, *op. cit.*, pp. 330-1.

attended by, and indeed was the reason for the absence of, what Mr. Jenks calls in American parlance a "stock and bond aristocracy." The fortune builders of 1875 onwards were men of action, and sometimes, as in Rhodes' case, they lived abroad. Cowdray, Leverhulme and Alfred Jones were the Rockefeller, Carnegie and Harriman of England. They were not "quasi-rentiers" in the sense of not earning their fortune fully, nor were they monopolists, like their American cousins. But rentiers there were in England, and these in chief were the owners of property in the great towns which, with London at their head, owed their wealth largely to the enterprise of others overseas.

CHAPTER XXVIII

THE EXPORT OF CAPITAL

(continued)

III

We come now to the theme¹ of Mr. Jenks, who in vivid and piquant narrative traces the migration of British capital in the first three quarters of the nineteenth century—its export from England, its shift from theatre to theatre and its performance in each. The main theatre yields a drama with three acts. Act I, Waterloo and after, Act II, Railway Building for Europe, Act III, Turkey and the Suez Canal.

In Act I the leading actors are the Duke of Wellington, established in Europe with all the prestige of final victory; and the two great lending houses of Baring and Rothschild, serving a capital market which the forces of the victorious powers made secure. They organised the payment of the French war indemnity; and the channel through which the finance passed, as well as the source from which it came, was London. Chapter II of Mr. Jenks' book throws new light on the last six years of Bank Restriction and deserves incorporation in our stock of financial history.

By 1825 another continent, America, North and South, commanded the attention of investors. And here, in a reference to South America, we meet a generalisation that is open to doubt. For on p. 63 of Chapter II we are told:

The violence, the corruption, the instability, the financial recklessness which characterised most of the South American Republics during a large part of the century are in no small way attributable to the early laxity of the London money market⁶¹.

¹ The theme has its obverse in the import of capital from Holland during the eighteenth century, when Dutch merchants became substantial owners of British securities—Bank Stock, East India Stock, The Funds. Since in this period Holland had no abundance of specie or domestic manufactures, she must have paid for these in Baltic or colonial produce or in mercantile services rendered. After 1793 her mantle fell on England, who through military and naval victories acquired much new colonial wealth, including for a time the rich colony of Java. Therefore in 1815, while still in the pre-railway age, England had ample means for making capital loans to Europe, over and above the export of her domestic manufactures.

We are glad to be referred to note 61. But when we consult it at the end of the book, where the mass of footnotes is hidden away, it is disappointing to find that the authority is a diplomatic history of the Greek monarchy (1838), which refers incidentally to "these new states." Certainly the one letter of Trevithick does not support the idea that the revolting colonies of Spain, when engaged in peaceful economic performance, were thrown into a maelstrom of violence and iniquity by the introduction of foreign capital. The reverse was the case: British traders and engineers, desiring the profits of orderly enterprise, were thwarted by the innate factiousness of these parts, and in Trevithick's case the disorders ruined the enterprise. The Rothschilds, however, kept clear of South America; they were Europeans from beginning to end.

In two chapters—"Railway Construction" and "Cosmopolitan Enterprise," Mr. Jenks shows us capital enterprise following its natural evolution: first the exploitation of the home field, then that of near by foreign fields, and finally that of distant foreign fields, domestic technique being improved and adapted to the new conditions, successfully in Europe and India, but with small success in Canada. Railroad building by English capitalists with English material and English labour was the Victorian counterpart of the export of machinery and emigration of artisans, and in this form it was not unwelcome. Moreover, as Mr. Jenks observes, there was no nationalist feeling in the 1840's and 1850's among English statesmen or engineers: both exhibited the cosmopolitan quality of confident pre-eminence. It was the Europeans who were anxious over the subordination involved. In France and Belgium the contact with England was very close and was not limited to railways. Charles Manby (of Manby, Wilson and Co.), a Staffordshire iron man, installed iron steamships on the Seine, supplied Paris with gaslight, and remodelled the steel mills of Creusot. William and John Cockerill were the industrial leaders of the industrial centre of Belgium, Liège. This was in the pre-railway age, when Holland and Belgium were under one monarchy, and the industrial ascendancy of England in Belgium was matched by her mercantile ascendancy in the Dutch East

Indies during the same period. The ascendancy extended over Europe as far as Russia, but the outbreak of the Crimean War (1853-5) was the beginning of the end. After 1855 Europe was less cosmopolitan than after 1815; and with 1870 the age of nationalisation arrived, or rather returned.

These contacts with Europe shaped the London money market, endowing it with international prestige and making the Bank of England's discount rate a matter of world intention. There is, however, some danger of attributing too much importance to the capital loans to Europe and to the discovery of gold in California. Most of the great mercantile business of Great Britain in the East was conducted by private firms with no listed capital. Mr. Jenks barely mentions these and does not even index Scotland. Furthermore, I cannot believe that if gold had not been discovered in California in 1848, it would not have been discovered and developed, at least as soon as in fact it was, in British Columbia, Australia and elsewhere. I hold it fanciful to say that a deflated Europe was saved from another generation of distress by the chance finding of gold at Sutter Creek near Sacramento in California.

The third act of the drama has for sub-title "Bankrupting the Near East"; and as Mr. Jenks clearly shows, the building of the Suez Canal was important strategically as well as commercially, for it severed Egypt from Turkey and brought England into Egypt and the Sudan. In this act Messrs. Frühling and Goschen played the Baring rôle, and one wishes that their activities were better known; certainly Gordon took the view that the Anglo-French financiers were ruthless both to the Khedive and his people. Alike in China and Africa he felt that he was playing a lonely hand, and this not because he was a soldier, but because at heart he was on the side of the people in whose countries he was fighting in opposition to a home Government, which was ready to disown him, and to a smooth-tongued clique of international financiers.

Where Mr. Jenks' book is least convincing is in its treatment of the British Empire, at which he administers many a slap. The British Empire has its defects no doubt, but it is certain that it has never been run by gangsters or

capitalists. There never was in Canada a Wild West, for the North-West Mounted Police forbade the crimes which were common south of the border. In British East Africa the rôle of the British East Africa Company, as the researches of Professor Coupland show, was timid and secondary. On the Niger the British Government, entering late, stood no nonsense from the traders, and least of all from Lord Leverhulme. In India, when it assumed direct control, it soon took the country out of *laissez faire*. Its policy was constructive, whether it was building railways, irrigating land, or fighting famine. The Government really governed. After these accomplishments of the nineteenth century came the modern era, the organisation of agriculture, the promotion of co-operative credit, the preservation of antiquities and similar things. They were items in a continuous policy designed for the material and moral progress of India, even if necessarily they had the drawback of being introduced by an alien power. Therefore, when a scholar allows himself to write—"Frequent famine was a painful corollary of the transformation of India by British capital. It is a phenomenon that at the best apologists for British rule must take considerable pains to explain away" (*op. cit.*, p. 229). I can only rub my eyes in wonder. When his book reaches the second re-issue which it certainly deserves, I hope Mr. Jenks will confess, in a word that is a household word in Indian military history, *peccavi* (I have Scinde).

CHAPTER XXIX

LABOUR MIGRATION AND EMIGRATION

A. Redford. *Labour Migration in England, 1800-1850* (1926).
D. F. Macdonald. *Scotland's Shifting Population, 1770-1850* (1937).
F. D. Hitchins. *The Colonial Land and Emigration Commission* (1931).
S. C. Johnson. *History of Emigration from the United Kingdom to North America, 1763-1912* (1913).
W. A. Carrothers. *Emigration from the British Isles* (1929).
H. I. Cowan. *British Emigration to British North America, 1783-1837* (1928).
R. B. Madgwick. *Immigration into Eastern Australia, 1788-1851* (1937).
C. R. Fay. *Youth and Power* (1930), Ch. VI.

This is a formidable list with which to close a course of lectures on English Economic History, and even so there is one obvious absence, namely a book on Ireland's shifting population parallel with those for England and Scotland. Ireland, however, presented to England and Scotland so grave a problem of immigration down to 1845, and after 1845 figures so prominently in the history of emigration from the United Kingdom, that we lack in effect not the Irish facts so much as the Irish point of view. These monographs, in so far as they relate to the British Empire, are concerned with topics which also are fully treated in the Dominion volumes of the *Cambridge History of the British Empire*. Perhaps we may visualise our subject by the metaphor of a human hand. The palm is the mother country: the thumb the United States: the four fingers are Canada, Australia, New Zealand and South Africa, South Africa being the little finger not because of small size but because of the limited field which for geographical and social reasons was offered to British settlement. Emigration is thus the logical stepping-stone from English Economic History to that part of General Economic History which falls outside Europe, and the book-list accordingly is large.

Immigration, migration and emigration are species of the genus mobility and correspond to the influx, internal transfer and efflux of capital. If the necessary statistics existed, we might find a central thread for English Economic History in the story of capital investment, domestic and foreign. We should watch capital flowing equi-marginally over the

investment field at home and abroad. But the figures do not exist, and in any case we should be confronted with the difficulty that little business enterprise took the form of a company with listed capital before 1862. As population grew by its own natural increase, so businesses grew, whether in private or company form, by the ploughing back of profits into the business, and as we have seen in the example of Peter Stubs, the early industrialists only went to the banks for accommodation when they had set themselves on their legs.

For the movement of population we have better figures: for internal movement the decennial census, and for external movement the figures of immigration and emigration.

The stories which Mr. Redford and Mr. Macdonald have to tell are important in two ways. They lead up to the problem of the present distribution of the industrial population, which we have already studied, and they tie in with the problem before us now, the course of migration overseas.

Let us note, first, that the first century of the Industrial Revolution, say 1760 to 1860, was also the first century in which *immigration* from Europe was unimportant. These hundred years constitute for England the gap between what America calls the old and the new immigration—the old immigration of skilled workers which the country receives as a boon and the new immigration of unskilled workers moving under the drag of distress and causing social difficulties by their arrival. The new immigration was of small importance in nineteenth-century England, but in the twentieth century it is with us in serious form and never more so than at the present day, when London and other centres of population are being called upon to digest large bodies of refugees with a low standard of life.

For England, however, migration within the United Kingdom constituted an important problem of immigration both in the eighteenth and nineteenth centuries. Ireland and Scotland in this period were countries with a growing agricultural population, which sent more migrants to England (and in the case of Ireland to Scotland also) than they received from England. In general the Scottish influx was as welcome as the Irish was suspect.

The Scottish immigration was an overflow from her own development. It was primarily from the Highlands to the industrial Lowlands, and difficult because the latter were inaccessible except by the slow and painful process of walking on foot. Moreover, such immigration encountered at the beginning of Scottish industrialism a sharp competition from the near by Irish of Northern Ireland. But the Highland migration was not always to the south. For in the early nineteenth century the re-organisation of Scottish fishing and the removal of the salt duties led to a great expansion of the herring fishery on the north-east coast, whose harbours Telford so greatly improved. Furthermore, there was one occupation, consequent upon industrialism, which kept the people at home, and that was the kelp industry, a raw material of the chemical industries. When this declined, the southward movement intensified; and as people came south, sheep farming and deer forests crept north, and the clash declared itself in the crofter evictions, the subject of a Royal Commission in 1884.

Ireland's communication with Great Britain was by sea, and when migration is by sea mileage is comparatively unimportant. Much of the Irish flow was human ballast brought back by the colliers on their return journey from Ireland to Glasgow and South Wales. Ireland's position, 1800–1850, was that of a country purely agricultural and yet very prolific, living on a potato diet below which it could not go, but physically strong and therefore much in demand for the great new employment of the Victorian age, railway construction. In *Great Britain from Adam Smith*, pp. 346–9, I have tried to summarise the economical and social consequences of the Irish influx to England.

Unrestricted emigration is parallel with the free movement of goods. We may call it free trade in humanity. With the Repealing Act of 1824 the old restrictions on emigration disappeared, and they only reappeared toward the end of the century in the form of restrictions imposed by the countries of destination in their own interest. These restrictions were complementary to the adoption of fiscal protection by the New World.

We may divide the story into periods, beginning in 1776 and closing in 1914.

Period I, 1776–1830. Before the outbreak of the French War in 1793 Great Britain assisted one splendid piece of Empire settlement, not however from the Mother Country but from the revolting colonies. The British Government treated the United Empire Loyalists generously and recognised their value to the future of Canada. In the Canada volume of the *Cambridge History of the British Empire*, Chapter VII, which tells the story of their settlement, I can find nothing to support the view expressed by Mr. Madgwick (whose subject is Australia) that "even the Loyalist settlements in Upper Canada were regarded as more or less static settlements. . . . they were viewed with toleration rather than encouragement."¹ At the earliest possible moment Great Britain conceded representative political institutions, and the services rendered to Canada by statesmen such as Carleton, Huskisson, Durham and Elgin show how greatly the British Government valued Canada. After the Second American War a further strain of healthy settlement was introduced by the disbanding of the Highland regiments.

Equally creditable was the Albany settlement of 1820 in South Africa, which the Government assisted because it desired to protect and extend the frontiers of Cape Colony against the southward thrust of the Kaffirs.

But while Great Britain was assisting the settlement of the United Empire Loyalists in Canada, she was also engaged in the crime of 1788, the settlement of New South Wales as a Penal Colony. To us of to-day it is almost unbelievable that a Government should take a fair land and turn it into a Devil's Island of cruelty and vice. It would seem that England condoned the crime just because she was becoming humanitarian. In 1777 John Howard's report on the state of the prisons had aroused concern over the treatment of criminals. There were no proper prisons, the hulks were revoltingly and distressingly close, and so the convicts were shipped abroad out of sight. This was in Jane Austen's England, which always seems to me much more a Tale of

¹ *Op. cit.*, p. 2.

Two Nations than the England of Disraeli's *Sybil*. After 1820 England was increasingly concerned with her own problems. In the new age of peace and deflation population was an obsession and emigration a favourite cure. Landlords regarded emigration as a means of relieving over-crowded estates: industrialists regarded it as a means of relieving cyclical unemployment: the Government regarded it as a measure of Poor Law Relief. The colonists resented what they called pauper-shovelling. We must not, however, forget that artisans could emigrate freely after 1824, and many found industrial advancement in the new cities of America. Mr. Macdonald tells us how numerous were the mechanics who emigrated from Scotland to Europe as well as to America at this time.

Period II runs from 1830 to 1850. This was the period of Gibbon Wakefield and the colonial reformers, and of planned settlement in Australia and New Zealand. Wakefield is a preposterous enough figure, but like Owen he was right against the majority of his generation. He sought to end chaos by a plan, and though, as in Owen's case, it would not work, the idea behind it was sound, namely the conception of Australasia as a possible theatre of humane and orderly development. He emigrated to New Zealand in 1853 and lived long enough there to see the country of his adoption enjoying responsible self-government and the settlements of Dunedin and Christchurch, organised by the Presbyterians and the Church of England respectively, growing into healthy manhood. How different was the story of Tasmania. Yet even here there is good to record. For although the Home Government had no thought of benefiting Van Diemen's Land by deporting the Chartists of 1839 thither, yet one of them did so greatly. Zephaniah Williams, the fellow victim of John Frost, discovered coal in Hobart, and being a specialist in mining he advanced from strength to strength, bringing out colliers and mechanics, opening up a special variety of cannel coal "Tasmanite," and exporting the product to the Australian mainland. He died at Launceston, Tasmania, in 1874, thirty-five years after the "mad enterprise" (as he called it) which had brought him to Van Diemen's Land.

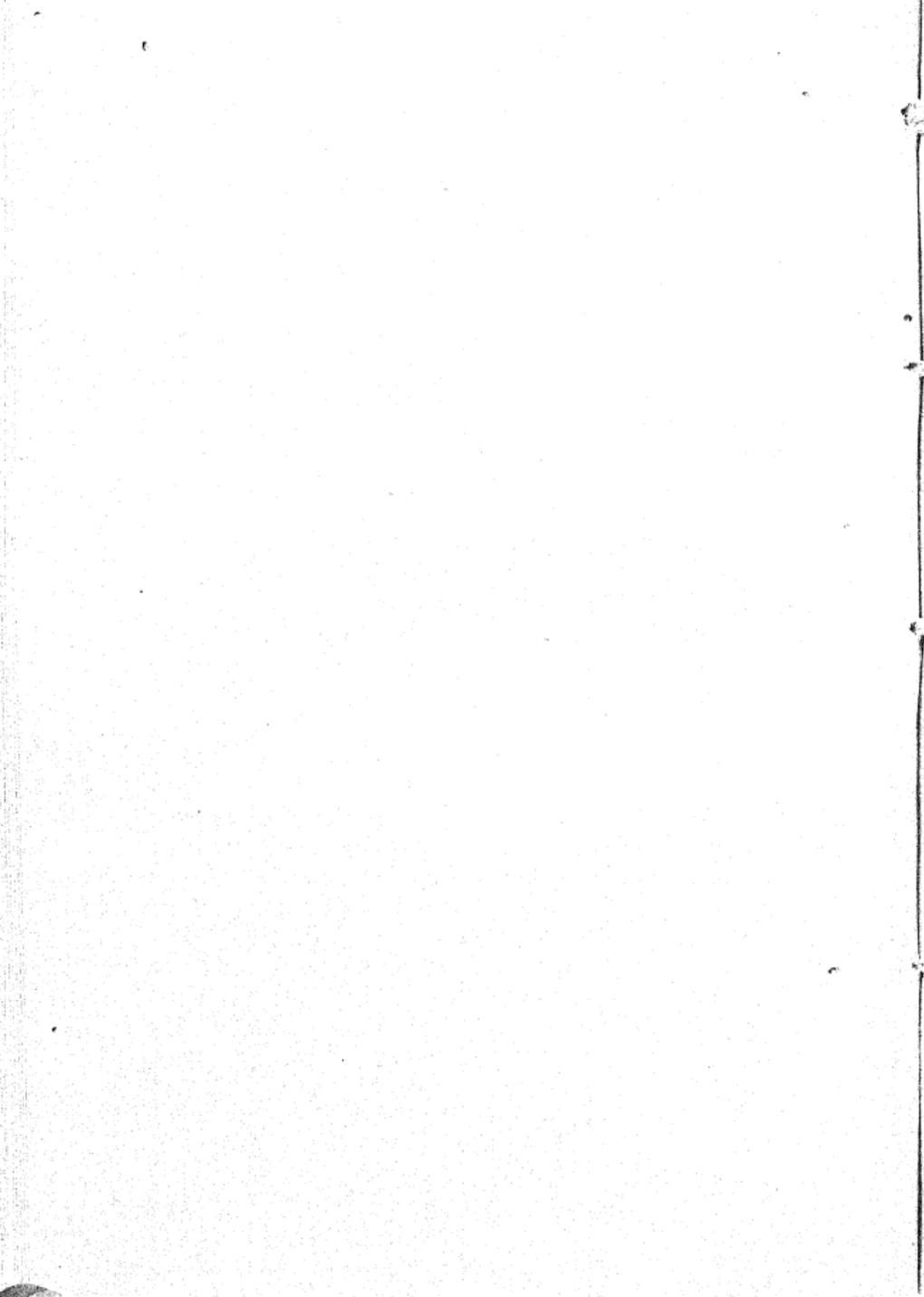
Period III runs from 1850 to the early 1870's. It was the period of free trade *in excelsis*, alike in humanity and goods. Ireland, after the famine of 1845-46, depopulated herself into the limitless bosom of America, and all the world, without his wife, hurried to the gold fields. The satisfying part of the business was that the emigration paid for itself; for even the poor Irish sent back the fare for more to come after them. In this mood of complaisance the Government acquiesced in the demise in 1872 of a very useful body set up in 1840 in the planning period, the Colonial Land and Emigration Commission, which advised settlers and directed them on the outward voyage.

Period IV to 1914 has no date of origin. For when emigration settled itself so harmoniously, it ceased to be an object of policy. Imperial feeling was in decline and statesmen took little interest in directing it, as they had tried to direct it after 1815, to British countries. But in the 1890's the attitude changed, and with Canada in the forefront of interest the modern relationship developed—the home country and the Dominions co-operating to send out and receive the class of emigrants suited for the country. In 1900 Canada came into her own. The tide which had flowed since 1850 into the United States now edged up to the Canadian prairies. Immigration rose from 49,000 in 1901 to 402,000 in 1913, and *laissez faire* in humanity enjoyed a last ten years of reign. But the war closed down emigration, and after 1918 the restrictions were continued under the stress of civil re-establishment. Conditions have since remained fundamentally different from those which prevailed throughout the nineteenth century.

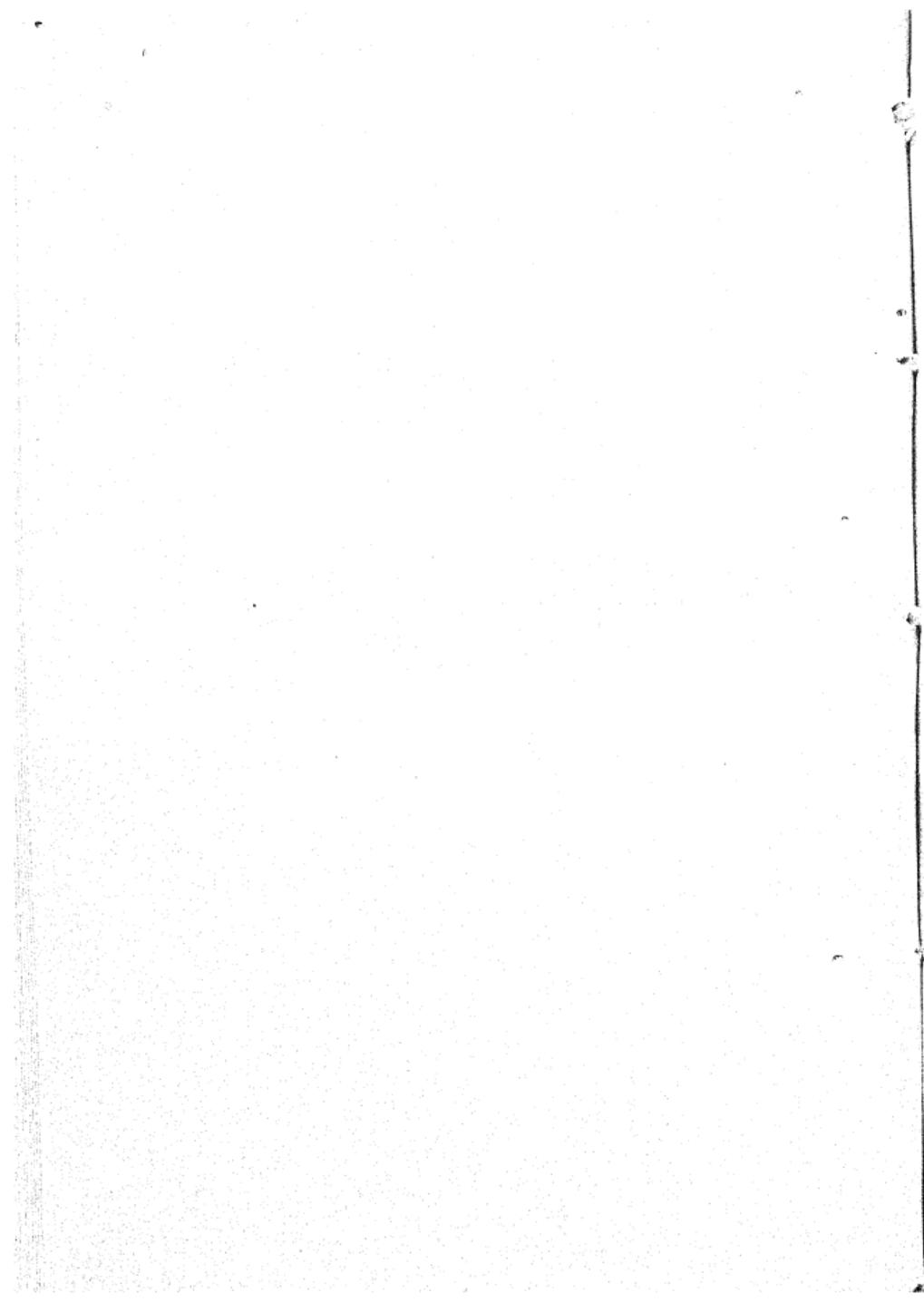
A further aspect of emigration is the traffic in it and its control. Here even a *laissez faire* Government had to act in order to put an end to the heavy mortality and the disease accompanying the early traffic. It passed a series of Passenger Traffic Acts, culminating in the Act of 1855, which has been termed the Magna Charta of the emigrant. The arrival of steamships was of importance in this regard. For they replaced the rotten timber ships, coffin ships as they were called, and being big they could carry large numbers. The pioneer line in this field was the Inman line,

which in 1856-57 carried one-third of the steamship traffic on the Atlantic in its specially designed screw steamers running from Liverpool to Philadelphia.

In reviewing the countries of destination it is natural to omit the tropics; for to these parts there was no mass movement from England. But it is well to remember that many Englishmen and more Scotsmen of the nineteenth century were spending their lives in the tropics or sub-tropics as administrators, traders, engineers and planters, and that these constituted a body of temporary emigration which was of enormous value to the progress of British industry and commerce. I leave you with this final episode. Sir Samuel Baker, the discoverer of Albert Nyanza, later Governor-General of the Equatorial Nile, spent nine years in Ceylon, 1846-55, as a planter and railway surveyor. He was fond of sport and big game and he settled a spot in the hilly centre of Ceylon in truly manorial style, bringing out a party of his own family and twelve other emigrants on a ship, the *Earl of Hardwicke*, which he chartered for the purpose. It was a gallant company, young men with wives and babies, grooms, horses, hounds and bulls. He was rich enough to make the experiment a great success, but the malarious jungle through which he roamed after sport damaged his health and he was forced to return to England in 1855 to recuperate for his second and greater adventure in the heart of Africa. The place he settled was Nuwara Eliya, and his own property is now prize tea land. Nuwara Eliya, I do believe, is the most beautiful spot in the British Empire, not excepting even the New Zealand Alps. All the colours in the rainbow are around you. In the cool of the evening you sit before a log fire in a Harris tweed coat; in the day-time beneath a sun-helmet you play golf on the greenest of greens, where every prospect pleases and man is by no means vile.



APPENDICES



APPENDIX I

BRITISH STEELMAKING AND FOREIGN COMPETITION, 1870-1914

By MR. D. L. BURN

"Among the many vast industries of Great Britain there is none so peculiarly her inheritance and her strength as the iron trade and its allies. We cannot claim a manifest destiny or depend upon permanent supremacy in reference to any other industry." Thus *The Times* in 1879, when the "Great Depression" lay heavily upon the ironmakers. Within 25 years the same journal was lamenting that "British supremacy, which lasted for more than a century, is now merely a matter of history." Both America and Germany were now much larger producers than Great Britain, which held only 40 per cent. of the world export trade in iron and steel against the 80 per cent. of the 'seventies. And, more striking and disturbing still, British makers—to quote an official historian of the last war—"were behind other countries in research, plant and method."

I propose to discuss some of the economic conditions which gave rise to this change. But first let me put this question. Why should technical leadership in the steel industry so soon have deserted the country in which all three fundamental inventions of modern steelmaking—those of Bessemer, Siemens and Gilchrist Thomas—were made? Note first that none of these inventions was made within the industry: the inventors were outsiders and not too warmly welcomed. They did not dominate the industry; and those who led it were ill-qualified to be pioneers in steelmaking, which needed scientific training and abilities more common on the continent than in England. It is therefore not surprising that the cumulative improvements which count for so much in modern industrial advance occurred predominantly, 1875-1900, in the steel industries of countries whose scientific and technical education was more advanced than the British—viz., in Germany, France and the United States. Even the technical adaptations which made steel shipbuilding possible were made first not in Britain but in France, though for evident geographical reasons they bore more fruit in Britain.

The steel industry was one of the first in which applied science played a dominant part and rule-of-thumb methods were inadequate. Britain started in such an industry with a disadvantage because her education lagged; a fact which is fully recognised by observant contemporaries from the 'sixties onward. "The teacher of science must have equal honour with the highest masters," said a writer in the *Quarterly Review* in 1867 with

foreign competition in mind, "and not slide in through the school gate as an interloper, like the teacher of German, or come down at odd times by express train, like the professor of fencing." Subsequent discussions by Parliamentary Committees and Royal Commissions bear witness to a continuing disparity in this matter, though of course in absolute terms British education advanced notably. There were some observers, like Matthew Arnold, who thought that Britain suffered not merely from a lack of scientific training but from an "indisposition to science." If this were so, it was an added and formidable handicap.

I come now to my main theme—the economic conditions which so rapidly reversed the international position of British steel-making; and I will confine myself to three considerations.

Consideration I. *Ore supplies.*

Marshall was inclined to associate the relative decline of British steelmaking with shrinkage of ore supplies. But in retrospect the curious fact is that at this time the biggest remaining ore deposits—those of the East Midlands, in Lincolnshire, Northamptonshire, Oxfordshire, etc.—were extensive and cheap to work, and yet hardly being used. Marshall was right in believing that the costs of obtaining the ores actually used rose appreciably between 1875 and 1900, and that this checked the growth of the British industry. But why did the industry not turn to cheaper sources of supply?

It is an intricate problem. Originally iron ore was found in widely scattered form—more scattered than coal, and more scattered than the ore of rival producers. This had a decentralising effect, both on iron making and iron using. Iron was not necessarily made where there was ore. In the early stages the presence of timber for fuel and water for power was necessary. From the later Middle Ages on, the increasing use of pit coal by smiths caused ironmaking to be concentrated around the chief coal workings. Once coke was used for smelting iron, the coalfields became a still greater magnet, and in the first phase of the Industrial Revolution the iron industry was situated chiefly where iron and coal occurred together—in the valleys of South Wales, in South Staffordshire and Shropshire, South Lancashire, the West Riding of Yorkshire and the Scottish coal-fields. In all these districts ore supplies were failing by 1870. The North-East Coast, the last to grow before the invention of modern steel, settled on the Tees, a little away from Cleveland ore and Durham coke, but close to both. The East Midland ore, relatively remote from coal, was barely touched.

Now, steelmaking required at the outset non-phosphoric ore. The only important deposits of hematite were found near the North-West Coast by Barrow and Workington, a district hitherto little developed; and so the great Bessemer works grew up here,

as well as in South Wales and on the North-East Coast, where hematite could be imported, and in Sheffield, where the skill and tradition acquired in making crucible steel was applied to the new product.

Open-hearth steelmaking brought yet other influences to bear. Non-phosphoric ores were still required, but the steel was used for new purposes—Bessemer steel almost entirely for rails, open-hearth for shipbuilding and engineering. These latter were industries which constituted an important source of "scrap," since a lot of steel was discarded in processing. Now, the open-hearth process, unlike the Bessemer, could re-melt a lot of "scrap," which became therefore an important raw material; and, because of this, proximity to the market became an advantage. Of the great Bessemer centres only Sheffield and the North-East Coast were close to "scrap" supplies; hence the open-hearth process, while it opened new fields for steelmaking, did not give much opportunity for most of the older works to expand. However, it provided a strong foundation for a Scottish steel industry.

Thus of the main steelmaking centres at the time the basic process was introduced, only one, the North-East Coast, had ore supplies which fitted it to make basic steel to great advantage. The remaining districts experienced rising costs, and it became increasingly *possible* to make steel more cheaply in such areas by using the East Midland ores. Why was this not done? The explanation is threefold.

(1) There were no local markets, hence no local scrap, and high delivery charges. If anything, markets were becoming more remote, because from 1870 onwards makers of heavy goods for export moved from the old Midland iron centres westwards to the coast—to be near Liverpool, Glasgow or the ports of South Wales. (2) The basic process required considerable scientific skill. Basic steel had a very poor reputation at first, and almost certainly continental makers improved the quality before British. (3) There was the competitive strength of the existing works, the bases of which will be analysed later.

Consideration II. The Rate of Growth of the Market.

The second condition which helps to explain the relative decline of the British industry was the relatively slow growth of the market for British steel. In the 'seventies 40 per cent. of the British output went to export markets, by far the biggest being Germany and the States. Both these, particularly the latter, were more expansive than the home market. Their populations were larger and growing faster, industrialisation had started later, and there was more scope for the crude capital equipment which takes much steel. America, for example, laid over 10,000 miles of new railway track in several of the boom years of this period; and there were also in America special demands for mass production steel—tin

cans for the food trade, pipes and containers for the oil trade, barbed wire fences and galvanised sheet roofs for the farms. Now, by tariff policies these markets were virtually monopolised: British suppliers were to a large extent driven out, and in order to sustain, let alone expand, their export trade, they were forced to develop new markets—in South America, the Empire, and the Far East. They did so with considerable success, but again at a disadvantage, for their protected rivals were able to follow consistently a two-price policy, selling cheaply in export markets in order to keep plants busy. The gap between the German home and export price for rails averaged 30s. per ton, 1880–96, and if it was subsequently less this was because a smaller margin was effective. Economists dismissed dumping as a "trivial incident," but without justification. It was, indeed, inevitable that the British output should grow relatively slightly: so much so that very rapid growth of a single plant in any centre of the British industry could only occur at the expense of some other plant or plants, as a result either of competition or amalgamation. This condition was not present in Germany or the States. Obviously it is easier for a plant to expand if it does not need to damage a rival in the process. However, the full significance of the slow growth in the market of the British industry can only be judged by reference to the next consideration.

Consideration III. The Interaction between the Nature of the Market and the Nature of the Plant.

We have seen already that the market was growing by the adaptation of steel to new purposes. These adaptations all required skill, and the firms making them acquired special knowledge and reputation, which constituted a sort of monopoly that might be retained for a considerable time, either because the maker's practice was secret, or because a newcomer would need a long period of experimenting or experience to achieve such tasks, or because the user of the product could not or would not risk taking somebody else's product. Now, steelmaking is not a mechanical process, and the quality of even a common-grade-product is affected appreciably by the skill, judgment, and care of the producers. Thus the industry was permeated by monopolies of a sort, and makers were able to secure for the product concerned a higher rate of profit than in more competitive branches of trade.

The securing of this advantage did not require much specialised plant, for steel-works equipment can be used for making a wide range of steel products. The same furnaces can produce different qualities of steel for different purposes by varying the materials charged: a rolling mill can produce different sections by changing rolls, which are a relatively small part of a mill. The net result was that while a firm would use its plant as far as possible to

make high-profit products, it would fill up with orders in more competitive lines, and accept prices there little in excess of prime costs, if this was the only way to get the business. The situation in fact encouraged in the common grade trades discriminating prices and internal dumping, particularly when business was bad. Hence the introduction of high-capacity plant was discouraged in the trades for which it was most fitted.

It might be thought that this would soon be offset by the increasing demand for steel and the wearing out of equipment. But steel-works equipment is long lived—much of it could be used, with minor repairs, for forty years or more; and the effect of growing markets was complicated by the violent short period fluctuations in demand. Steel is mainly required for capital goods, the demand for which varies more acutely than that for consumption goods. In periods of boom it was exigent, and prices for all products were usually very profitable: types of expansion of capacity were encouraged which could be rapidly completed before prices relapsed. Broadly speaking, only small-scale additions to existing plant came within this category. Large reconstructions would take existing plant out of use at a profitable time, while large new plants could not with advantage be embarked upon, when building costs were at their peak and they might have to be completed during the onset of a slump. Hence conditions were favourable to the repair and extension of high cost plant rather than to its elimination.

Two points relating to this should be noted. (1) When steel-makers integrate with consumers, you get in a rather more aggravated form the type of monopoly described above; an integration of this kind may well produce an unhealthy rigidity which hampers technical development. (2) As the industry becomes more complex, the firms which survive tend to have monopoly advantages in the market. They may have other monopoly advantages too, e.g., in raw material supply. The accumulation of these advantages leads finally to a position where all firms are so evenly matched that success in competition is so costly to any one of them as to be of doubtful value. The formation of a Kartell is an almost certain consequence of these circumstances.

The three considerations which have been discussed are not the only ones which, even on a casual examination, are important causes of the relative decline of British steelmaking in the period under review. Differences in the price of labour and in the facilities for obtaining large units of capital were clearly important. But I must conclude by commenting, in the light of the points which have been raised, on the view frequently expressed that the British relative decline was to a considerable extent "due to the early development of the industry in Great Britain, before modern methods had arisen." (I quote again from an official history.)

On the face of it the pioneer should have great advantages—early windfall profits, greater experience than rivals, and his plant should be sooner ready for scrapping. We may allow that British makers suffered as pioneers in two respects: (a) they advanced with early success into foreign markets which it was impossible to hold in face of hostile tariffs, (b) they went in, more extensively than their rivals, for the open-hearth process owing in part to the kind of market they were opening up, and this process was better adapted to small scale working than the Bessemer. But it is not possible to list among the misfortunes of the pioneer either the influence of scattered ores, or the effects of inadequate scientific training, or the disturbances due to imperfect competition in the face of a slow market expansion.

NOTE.—The above is an abstract made from Mr. Burn's lecture, which was given shortly before the publication of his *Economic History of Steel-making* (1867-1939), C.U. Press, 1940.

APPENDIX II
INLAND TRANSPORT, 1900-1940
By MR. C. E. R. SHERRINGTON

The task set me can only be expressed, in parlance which is now fashionable, as an objective which is unattainable, at any rate in the brief time allocated to me, from this, my zero hour. My only hope is to present to you several vignettes, which it is hoped will let you see in perspective the main outlines of the transport picture in those years which history will probably identify as landmarks, namely, 1913, 1923 and 1939. To these must be added the year 1900, the opening of this century.

Transport in 1900.

To parody a rhyme in the earliest picture book I remember being given, and known as "Really and Truly":

The Century opened, 'twas nobly begun,
At one mile a minute the railway trains run.

This parody is not quite accurate, as the races between the East Coast and West Coast routes to Scotland, of the previous century, had yielded higher speeds, but the 60 mile per hour throughout, or start to stop, speed was an early product of the twentieth century. It is not possible for me to recall personally the transport scene of 1900, as I witnessed it from too low an altitude. I merely glimpsed it from a manually propelled four-wheeled vehicle, devoid of brake power, but an endeavour will be made to sketch the scene.

It was predominantly a railway era, the coach and horses had virtually disappeared except from the outside of places of refreshment, where they still hang. The motor car, the motor bus and the lorry were in embryo. Local transport depended, in country districts, on the "wheel," as it is still known in the United States, or, as we should term it, the "bicycle," the older word "velo" or "velocipede" having fallen out of use. The local carrier was an institution of considerable social and economic importance; either one- or two-horsed, it provided the main means of transport for commodities and people between the villages and the local market town, provided the former possessed no railway service. From the Clarendon Yard at Oxford, for instance, went the carrier to such villages as Fyfield twice a week. In 1939, the Oxford bus probably gave a service several times daily at treble the five-mile speed of 1900. The first country motor bus service was run by a railway and served Lynton (Devon) about 1903, and the same buses were used by the Great Western the following year from Helston to the Lizard as an economical way of answering

the local demand for the construction of an expensive branch line extension. The railway bus service from Ballater to Braemar, in Scotland, was another early railway venture, and the Great Eastern and the North Eastern Railways also were among the pioneers.

London, as in the dawn of the railway era, lagged behind, for it was not until 1902 that tests were made by the London Road Car Company with a steam car along Oxford Street. The first "General" motor bus was a petrol-electric of 1904. It was not until 1901 that the tramways in the County of London were taken over by the London County Council, mainly to ensure standardisation of equipment. The first section to be electrified was completed in 1903. Glasgow could claim an electric tram by 1898, while in Liverpool all tram routes had been electrified by 1901.

Though there were a few steam barges on the canals, the inland waterways have altered less in the intervening years than any other form of transport.

But as movers of passengers and freight, the railways were paramount, and the network of lines existed very much as it does to-day, because the last main line to reach London, the old Great Central from Nottingham and Leicester to Marylebone, had been completed the previous year. The numerous small extensions in country districts, often in the form of light railways or narrow-gauge lines, have been the first to fall into oblivion for the reason that they were in many instances uneconomic at the time of their construction and never earned due interest on their capital cost of construction, and they became an unnecessary duplicate facility by 1930, when the motor-bus had attained its full development. It is not always realised that over 1,000 route-miles of railway have been closed to passenger traffic since 1923, when the total route-mileage in Great Britain stood at 20,400.

Passenger traffic by rail was already very heavy by 1900; exclusive of season ticket holders, over 1,142 million were carried that year, together with 425 million tons of freight.¹ £1,176 million was the total of paid up railway capital, and net receipts figured at nearly £40 million, a figure far in excess of the results for 1938, and closely approximating the Government guaranteed minimum of to-day.

Trains consisted almost entirely of four and six-wheeled vehicles, some of which still survive on branch lines in East Anglia, but there was vestibuled bogie stock on the main expresses to Scotland, Liverpool, Manchester, Birmingham and the West Country, and the Great Eastern had recently built a bogie vestibuled train for its Parkeston Quay—York Continental service. Dining cars

¹ Not comparable with figures of tonnage mentioned later.

were few and far between, steam heating consisted of footwarmers hired at the departure station, and illumination was almost invariably by gas or oil. The era of speed, however, had begun and mile-a-minute runs received much attention in the Press, since it was not until a few years later that the first 60 m.p.h. start to stop run figured in a public timetable.

Attractive as that period was, in spite of it being the period of the Boer War, we must move on to the next page of history, 1913, not forgetting that even in 1900 there was an electric tube line, the City and South London, at work, and that Cannon Street Station even then despatched 25 trains in the rush hour—which was 4 p.m. to 5 p.m., as contrasted with one of 5 p.m. to 6 p.m. to-day.

Financially the average receipts per train-mile varied in 1900 from 5s. 5d. to 4s. according to individual railways, and the expenditure per train-mile from 3s. 4d. to 2s. 5d., while the net receipts per train-mile averaged between 2s. 3d. and 1s. 3d.

1913.

The year 1913 proved a most important landmark because, being the pre-war year, it set the standard by which financial results were to be determined, until the provisions of the Railways Act, 1921, came into force in 1923.

From 1900 to 1913 railway progress was exceptional. Suburban lines in the Liverpool, Newcastle and London areas were converted to electric traction between 1903 and 1905, the last-named being the date for the Inner Circle. The year 1904 had witnessed the inauguration of the "Cornish Riviera Express" between Paddington and Plymouth, for many years the longest non-stop run in the world, though the original route was via Bristol, the Westbury line not being opened till 1906, a year which also saw the inauguration of the Fishguard and Rosslare route to Ireland. The G.W.R. opened another cut-off via Bicester to Birmingham in 1908, and started two-hour trains over the route two years later.

Greater comfort accorded to the passenger called for greater locomotive power, and the development of the steam locomotive in its turn demanded a stronger permanent way. This was achieved in several ways; by increasing the weight per yard of the rails, and by decreasing the spacing between the timber sleepers, by deepening the ballast underneath the sleeper and reducing the number of rail joints by lengthening the rails. Gradually rail length had increased from about 30 feet in 1900 to 60 feet on the London and North Western Railway in 1913. Heavier locomotive power—and by 1913 the maximum axle-load had increased to approximately 18 tons—permitted the haulage of increased loads, and passenger train tonnages advanced to between 300 and 400 tons; in the case of freight trains the

maximum was about 1,500 tons, a limit fixed not by the locomotive power but by the difficulty of adequate braking, owing to the lack of anything but hand brakes on British railway wagons. Even to-day the railway problem of speed is primarily dependent on two factors, braking and cost. A suitably designed express locomotive can easily attain 100 m.p.h., but the problem of stopping, within signal sections, a train travelling at 100 m.p.h. is fraught with considerable difficulty.

A speed of over 102 m.p.h. was claimed for a Great Western "City" class four-coupled locomotive down the Wellington bank on 9th May, 1904, but recently some doubt has been expressed as to the strict accuracy of the figure. Long-distance non-stop running was, and remains, a speciality of British railways, being made possible by the extensive use of water troughs and, in the case of the London and North Eastern Railway to-day, by a corridor tender. Slip coach services were at their zenith in 1913, but labour costs have made their use uneconomic. They were almost peculiar to Great Britain.

By 1913-1914, Cambridge had been brought within 71 minutes of London, Edinburgh 7 hours 45 minutes by the East Coast Route, Glasgow 8 hours by the West Coast Route, Liverpool 3 hours 35 minutes, Newcastle 5 hours 13 minutes and Plymouth 4 hours 7 minutes, while Birmingham rejoiced in a two-hour service by both routes (Great Western and London and North Western).

Railway legislation of 1913 included the Railway Companies (Accounts and Returns) Act, which standardised the form of accounts and statistics, but failed to include the use of the ton-mile as a statistical unit, though the late Sir William Acworth had long pressed for its adoption.

Whilst there were many small local lines, there were many medium-sized railways, such as the Great North of Scotland, the Hull and Barnsley, the Cambrian and many small railways in South Wales, in addition to which were the dozen or so large companies whose titles were known to most households, the London and North Western; the Lancashire and Yorkshire; the Midland; the Great Western; the Great Central; the Great Northern; the Great Eastern; the North Eastern; the London, Brighton and South Coast; the South Eastern and Chatham, and the London and South Western; the Caledonian, and the North British Railways. Only one of these has succeeded in retaining its original name to this date, namely the Great Western Railway (which in its earliest days was the London and Bristol, hence its arms).

Financially, 1913 was a satisfactory year, with a return of 4·17 per cent. on an issued capital of £1,073 million. Route-mileage stood at 20,245, and track-mileage at 50,604, including sidings; there were over 23,500 steam locomotives, and nearly

52,400 passenger coaches, as well as 735,000 wagons, not to mention the 600,000 odd privately-owned wagons. In 1913, 450 new locomotives had been placed in service, and nearly 1,002 million passengers had been carried (excluding the London Tube and District Lines). On the freight side, 19½ million head of livestock had been handled and 364½ million tons of freight.

It is of interest here to note that in 1938, a disastrous year for the railways, less than 8½ million head of livestock were carried, and only 264 million tons of freight, though the passenger total of 1,235 million was well ahead of the 1913 figure and almost reached the peak for all time of 1920 with its 1,255 million. The average fare in 1913 was under 10d., in 1938 it was just double that figure, but unfortunately the average fare per mile is not available in either case.

The year 1914 opened auspiciously, but summer holidays coincided with the outbreak of war, and transport services, as to-day, were diverted into channels commonly characterised as war effort. Bus services then widely extending into country districts were cut off in their prime by requisitioning of the vehicles and petrol rationing, a similar situation to that which we have recently witnessed, but the new competitor for transport services had been born, and had struck the imagination of the public. A further seventeen years were destined to pass before the co-ordination of public services by rail and road was brought to fruition; though on the freight side, as is clear from the recent "Square Deal" campaign, actual co-ordination has not gone far as yet.

Motor barges and tugs had commenced to ply on British canals by 1913, but the taking over of the railways by the Government, without the adoption of a similar policy in regard to the inland waterways, dealt a serious blow to canal prosperity. Later in the Great War the Government changed its policy, but the fact remains that geographically Great Britain is unsuited to economical canal operation, and it is significant of the lack of interest in canal welfare that the Ministry of Transport places against the table of tonnage handled by canals for 1913 and 1919 the words, "Not available."

1923 and 1939.

During the war period, the railways were guaranteed their 1913 net revenue, but charges were not raised sufficiently to offset the increased costs of labour and materials, and Government traffic was not charged for, with the consequence that the financial situation of the railways was thrown out of gear and there were heavy arrears of maintenance to be made good when the railways were handed back to company management and operation, under the provisions of the Railways Act, 1921, as

from the beginning of 1923. Actually the compensation granted to the railways to cover these arrears was £60 million, and one of the noteworthy features of the recent agreement between the railways and the Government is the attempt to avoid any repetition of this state of affairs during the present period of hostilities.

The history of the railway negotiations during 1920-1921 would well repay study to-day, since much the same problems will have to be met with at the termination of the present war. In reality the Railways Act, 1921, was a compromise, it reflected the desire on all sides to get rid of strict Government control, but insisted on a severe measure of rationalisation of the railway system. It amalgamated virtually all the railways outside the London area into four large groups, the ones familiar to you to-day. It also laid down procedure with regard to the handling of labour problems, for which it set up the National Wages Tribunal and the Central Wages Tribunal. Further it outlined the procedure which led to the design of an extended freight classification of 21 classes and a schedule of standard charges, which came into force in 1928. Amongst the provisions of this Railway Charter was the instruction to the Railway Rates Tribunal, which it set up, so to design fares and rates that they should produce a net revenue equivalent to that of 1913, plus allowances for interest on capital expended since that date, etc. In reality this instruction has been but a pious hope, never attained.

To those who believe that railway capital is excessive, it may be pointed out that the nominal capital of the British railways was reduced by the amalgamations of 1922-1923 to the extent of no less than £120 millions, but between 1913 and 1923, capital receipts had actually increased by £23 millions. In short, however much one may juggle with the figures of nominal capital on a balance sheet, it makes not a penny difference to the amount which has been received from the investor to build up the railway system, and it is hardly necessary to stress to this audience the fact that it affects in no way at all the earning power, i.e., the net receipts. Hence net receipts of the British railways should always be quoted as a percentage on capital receipts: the figure for 1913 was just over 4 per cent., for 1923 4·4 per cent., for 1938 2·68 per cent., and for 1939 my estimate is about 3·4 per cent. on capital receipts of £1,116 million.

It is worth drawing attention to one feature which must be unique in railway accounting. Whereas the railway system, including docks, hotels, steamers and road vehicles had cost £1,199 million by the end of 1938, only £1,116 million had been received from investors: that is, there was an excess of nearly £83 million, which has been financed internally. This huge excess is the complete answer to those critics who refer to watered capital in the British railways—whatever watered capital

really is, and I have never yet come across a satisfactory definition.

With railway developments in recent years you are probably familiar, but certain landmarks stand out, the Railways Road Transport Acts of 1928, and the Road Traffic Act of 1930, which together made possible a real measure of co-ordination with the bus operating companies, and the Road and Rail Traffic Act of 1933, which attempted unsuccessfully to bring about a similarly satisfactory solution between the railways and the road haulage industry. It failed, but by the adoption of the system of agreed charges it has proved a pioneering achievement in the complex field of railway rates and freight classification, a problem facing every railway administration in the world.

Another feature of the past decade has been the reduction in competition between different railways. In 1932 and 1933 permission was granted by the Minister of Transport for the creation of pooling schemes between the different railways which, with certain much earlier and more limited pools, covered all competitive rail routes within Great Britain. At the same time, the London Passenger Transport Act, which came into operation in 1933, embodied a pooling scheme covering virtually the whole of the public passenger transport in the London area.

What the immediate future holds in store for this country, its transport system and its railways, I am not rash enough to prophesy, but one can say certainly, that in this war there is no single factor more vital than transport to both sides, ours by sea, Germany's by land. It calls for serious criticism that this branch of economic learning has been left virtually untouched in this country for so many years. Perhaps I may have induced one or more of you to think of entering on a field of investigation which is as yet practically virgin, and where amidst a sea of over-crowded professions you will walk almost conspicuously alone.

APPENDIX III

"SOMEWHERE IN CO-OPERATIVE FRANCE"

By MISS M. DIGBY

The presence of a B.E.F. in France and the need for liaison and understanding between our two countries, not only in war but in the peace which is to follow, make it desirable that English students should know something of the co-operative movement in France, especially in those areas which for military reasons are so well known to us. This lecture deals only with the Industrial Co-operative Movement (consumers societies and productive societies). Those desiring information concerning the Agricultural Co-operative Movement (supply, credit and sale) in France itself and in French North Africa, are invited to study the Year Books of the Horace Plunkett Foundation and, especially, the forthcoming volume for 1941.

Consumers' Co-operation.

The region of France now held by the British army includes the territories of some of the best of the French consumers' co-operative societies. The largest of these—indeed the largest in France—is the *Union of Lorraine*. It was formed in 1921 to renew co-operative activity in the area which was perhaps the most completely devastated by the last war. It was in form an amalgamation of a number of small societies, new and old, scattered along the old front line, but it was in effect a new creation. Just as the total destruction of French industrial plant in the same area allowed industrialists to restart with more thoroughly modernised and therefore more efficient equipment than they would otherwise have obtained, so the *Union of Lorraine* could discard much that belonged to the primitive stage of co-operation (including the old quarrel between "political" and "neutral" societies) and could experiment with the newest forms of retail trade. This made it a formidable competitor with and sometimes imitator of the chain stores, which were particularly well developed in this part of France.

The *Union* to-day covers an area as large as Switzerland, stretching from the Marne to the Moselle and from the Vosges to the Ardennes. It had in 1936 some 153,000 members, partly miners and metal workers engaged in light and heavy engineering in the north, partly small farmers, vinegrowers, dairymen and stockbreeders in the south and in the Vosges. The headquarters and wholesale dépôt of the *Union* are at Nancy. Its other principal dépôts are at Charleville, Verdun, Bar-le-Duc and, on the southern limit of its territory, at Dijon. It has some 800 shops scattered throughout the industrial and rural areas alike.

These shops are run on a system common in France though not practised in England. Each shop is placed in charge of a manager or in some cases a married couple, who is responsible for running it and engaging the necessary assistants and who is paid wholly by a commission on turnover. The management of individual shops is checked by inspectors, each appointed to a district, whose payment is also associated with the profits or losses of the shops under their control. It is on their advice and through their activity that the new branch shops are established. In addition to "fixed" shops there are a number of "travelling shops," specially equipped vans which make regular calls on the smaller and remoter villages. Here again the driver-salesman is personally responsible for the business of his van and for its upkeep.

With so much devolution of responsibility, the Union has none the less maintained a firm central control and a certain uniformity, valuable for purposes of publicity. It has always aimed at a low price, even if it means a low dividend. It is in fact not above practising the use of a cheap "leading line" to attract custom, if it can be done without sacrifice of quality. A cheap quality is indeed far from being a characteristic of the Union, which has a large range of commodities, including high grade and even luxury goods. It gives house-to-house delivery in towns and sometimes to isolated farms, and advertises extensively on hoardings and in trams and buses. Its shops are painted a uniform cheerful orange, and its vehicles, both travelling shops and local vans, are orange with gold lettering.

When war broke out in September, 1939, the work of the Union was at first dislocated by the mobilisation of men and transport, but it soon adjusted itself, going back to the old equipment where the new had been requisitioned, and in the autumn months of 1939 its turnover was higher than in the preceding year. Recent figures for that turnover are not available, but in 1936 the sales were 285,000,000 fcs., a high figure for a membership with a large proportion of partly self-supporting farmers.

To the east of the Union of Lorraine and on the other side of the forest-covered Vosges lies the department of the Lower Rhine, the northern half of Alsace, with Strasbourg as its capital. Co-operation in Alsace dates from the first half of the nineteenth century and was the joint creation of the textile workers and of the more intelligent and philanthropic of their employers. Later, the influence of Schulze Delitsch made itself felt from across the Rhine and a credit movement grew up alongside the nascent consumers' movement. These two lines of development continued after the German annexation in 1870. On the consumers' side, the three strongest societies came to be those of Strasbourg, Colmar and Mulhouse, which, with a number of smaller units, make up the Union of Alsatian co-operators, a

non-trading body, a co-operative union in the English rather than the French sense.

Strasbourg has for centuries been the meeting place of east-west and north-south traffic. It stands in an agricultural district midway between the heavy industry of Lorraine and the textile industry of the Upper Rhine. It is consequently a commercial and banking city, an administrative and military headquarters and a centre for the agricultural industries of milling, brewing and tanning. Public spirit and socialist theory rather than a great industrial proletariat have nourished the co-operative idea.

After one or two false starts a co-operative society was founded in 1902 under German law, and was affiliated to the German Co-operative Wholesale Society in Hamburg. It established its headquarters, bakery and wine cellars at the Rhine port of Strasbourg and had a number of customers and some branches across the Rhine. During the war it was for a time in the hands of the military and later appointed an official municipal organ of distribution. After the war and the transfer to France, it lost its branches across the Rhine and turned to the Paris Wholesale for supplies, but retained a number of German characteristics—the small elected management board and the supervisory committee—and an Alsatian by-law which makes it difficult to sell foodstuffs and clothing in the same shop. This provision is circumvented by an arrangement with the Wholesale Society and with certain private firms, by which members buy their clothes and furniture from these firms and present their receipt for dividend payment to the Co-operative.

The *Strasbourg* co-operative has to compete with highly developed modern commerce, with chain, departmental and one-price stores, and with small traders linked in the efficient "Edeca" wholesale organisation which they took over from Imperial Germany. Even before the last war the Society was a pioneer in the organisation of branches and the avoidance of small competing societies. No branch is opened till a sufficient group of co-operators has been formed locally. The first step is to send a "travelling shop" (pale blue to contrast with the orange of Lorraine) which arrives regularly at the same hour in each village. Many "travelling shops" have as large a turnover as a fixed branch. If the village supports the venture an established branch follows, if not, the travelling shop travels elsewhere.

The society has grown and prospered. Its membership has come to include an increasing number of middle-class people, though workers still account for just over half and there is an appreciable representation of farmers. The society is well capitalised from shares and savings, it has a turnover of 117,730,846 fcs. and does nearly one-third of the grocery trade of Strasbourg. It is open to all, does not try to cut prices, but even

without the dividend shows a general price level a fraction below that of its rivals. It insists on cash sales but issues an advance chit for the annual dividend on which members may obtain small loans. It has been a pioneer in movements for adult education and youth hostels, both late developments in France, and has its own holiday centre in the Vosges at Heiligenstein. It was to this hotel that the Society hastily removed its headquarters when the outbreak of war in 1939 found it with supplies and administrative machinery only 100 yards from a hostile frontier. The society indeed has suffered heavily in the past six months, with more than half its shops closed, all its transport mobilised and three-quarters of its employees and members either mobilised or evacuated to central France and the Dordogne. That societies have survived worse experiences, however, the history of the last war shows.

The consumers' co-operative, the *Union of Amiens*, was a creation of the ill-paid textile workers in a district which had woven cloth since the days when sheep grazed over the downs of the Somme, but had turned its skill to cotton as sheep disappeared with changes in agricultural technique. The founders were influenced by the example of socialist co-operation in Belgium, but what they evolved was at the outset something unique, a co-operative society run by the trade unions and open only to trade union members. The conception broke on the relative indifference of trade unionists, and in 1912 open membership and Rochdale principles were introduced. In the meantime the society had found its idealist and business intelligence in M. Cozette, its managing director. It needed both, for the society was to be twice invaded, once in 1914 for a few weeks and again in 1918 for five months, and had to deal with all the problems of evacuation, return and reconstruction. In 1918, indeed, it was the only food shop to remain, and was charged both by the military and civil authorities with the provisioning of the city. It was also the recipient of the savings, goods and livestock of its fleeing members, and when its administrators had at last to leave it was to set up business again in villages where refugees had gathered. The relations then established with the municipal authorities were to stand the society in good stead in the future and to override all differences of political outlook.

The post-war period saw a rapid increase of branches and the amalgamation of small societies throughout the valleys of the Somme and Oise. The trade union influence was further attenuated, the branches secured more representation, politics dropped out and membership was drawn from all sections of the population. In some communes all the inhabitants were in membership. The society attended to their social welfare through insurance and pension schemes, a People's House on the Belgian model, with facilities for study and recreation, a holiday home, sports clubs and an important savings bank which the

society wisely refused to amalgamate with the less stable Co-operative Bank of France.

The northern departments in the triangle between the Channel and the Belgian frontier were the scene of the earliest co-operative developments in France, and to-day are the sphere of a number of comparatively small societies (80 in all) affiliated to a group of nine regional development societies, of which the largest are those of Flanders and Artois in the northern half of the territory, and of Scheld and Sambre round Cambrai in the south-east. The area begins with the agriculture of the channel coast, passes through densely populated metallurgical, textile and coal mining regions, and ends with the agriculture of the Cambresis. The first societies were socialist and much influenced by Belgium, but with the general fusion of the French political and neutral movements in 1912 and the experience of the war, they broadened their basis and followed the structural development of Amiens. Amalgamation has gone some way but could probably go further with advantage. Some of the development groups operate joint mills. The Scheldt and Sambre by a somewhat contrary development has consigned its bakery to a productive society of employees working on contract. The whole movement has gone deeply into the life of a somewhat grim industrial area.

The only other society coming near the present war zone is the flourishing *Union of Champagne*, with headquarters at Chateau Thierry, a society which suffered invasion in 1914 but of which the story, dear to French co-operators, is told that, on the retreat of the Germans from pillaged towns, the co-operative stores were found intact, with the inscription chalked in German on their shutters, "These are good people: leave them alone."

A particularly interesting example of consumers' co-operation on a large scale, which for a time had its sphere of activities in Northern France, was the E.F.C.—the Expeditionary Force Canteen—which catered for the needs of the British forces from 1915 to 1919. The E.F.C. had its origins in the Canteen and Mess Co-operative Society founded in 1894 on the private initiative of three officers, rightly dissatisfied with the then existing system of Canteen contracts. It was a genuine co-operative society registered under the Industrial and Provident Societies Act and affiliated to the Co-operative Union. It undertook wholesale purchases on behalf of regimental canteens and returned to them all profits in the form of rebates. The Society grew, without official patronage, by its own sound principles and good management, and by 1914 was one of the largest of the Canteen contractors. When it became necessary to provide a canteen organisation for the Expeditionary Force it was to the Society and to one of the best of the private contracting firms that the military authorities turned. The two concerns were amalgamated to form a single co-operative institution, the Expeditionary

Force Canteen. Its capital was increased by loans guaranteed by the Treasury, all of which were repaid with interest. The turnover of the new organisation rose from over £2½ million in the first year to nearly £9 million in 1918. It did not confine itself to food and drink, but sold "everything from a button to a bottle of champagne, and from a packet of pins to complete equipment for an officer."¹ "It had under its charge fleets of lorries and vans, officers' rest houses and clubs, mineral water factories (including the famous Valroy Spring at Etaples), breweries, butcheries, bakeries, printing works and cinemas."² It employed some fifty types of skilled labour. It was entirely self-supporting and self-governing. It used its surpluses to lower prices, improve service and provide amenities and entertainments, and it finished the war with a profit running into millions, part of which was distributed to servicemen's funds and part went to form the capital of the present N.A.A.F.I. (Navy, Army and Air Force Institutes), which received its charter in 1921 and to-day is once more carrying on the co-operative supply of the British Army in France. In the French Army a corresponding system of "military co-operatives" was established, but does not seem to have welded into a single organisation.

Another transient form of co-operative enterprise was the widespread movement among the numerous Polish workers in French mines and factories, for which a special central office with a Polish staff existed during the period when immigration was in greatest volume.

Workers' Productive Societies.

Except in the Nord Department few workers' productive societies of importance appear to have their headquarters within the area, but in the case of many with offices in Paris or even further afield, their works speak for them, if not with a voice loud enough to be heard by the casual passer-by. Some of these are old societies, but many were founded by demobilised men immediately after the last war, skilled tradesmen eager to be once more their own masters and at the same time to help in the reconstruction of the liberated and devastated territories. Thus the building society, *The Swallow* of Paris, which specialises in ferro-concrete construction, built the bridges round Laon in the Aisne district as well as near Lille and the Belgian frontier. *The United Excavators*, a group of Bretons, skilled in digging deep foundations, worked in the devastated regions of the Oise. *The Union of Carpenters of the Seine* rebuilt the belfries and rehung the bells of many ruined country churches. The *Artists' Co-operative Foundry* of Paris and the great co-operative quarries

¹ (Sir) J. W. Fortescue, *Canteens in the British Army*, 1928.

² *Journal of the Royal United Services Institution*, Feb., 1940.

of Comblanchien, near Dijon, worked on war memorials either of bronze or of the fine grey limestone which takes a polish like marble and comes from the vine-covered face of the Côte d'Or. The *Workers in Lead and Zinc* from distant Limoges began operations in the devastated regions of the Aisne and their handiwork may be seen at St. Quentin, Rheims, Albert, where they re-roofed the Town Hall, Lens, Dijon and Charleville. *The Association of Makers of Instruments of Precision* set up the new central telephone installation for the 10,000 subscribers of the Strasbourg Exchange, besides supplying and installing instruments in the exchanges of other places.

The most famous example of co-operative industrial production, is, however, the old-established *Familistère*, the stove factory founded by Godin at Guise (near St. Quentin) in 1840, and transferred to the absolute control of the workers in 1880. This remarkable institution, deriving equally from the theories of Fourier and from practical experience of the hardships of industrial workers a century ago, was built up by one who was, like Owen, an able man of business as well as a constructive philanthropist. As a social architect, indeed, he may be held the greater man, since the community he devised has survived his death by more than half a century and shows no sign of decay. The *Familistère* is not only a flourishing stove factory employing some 2,000 workers and (by an ingenious system) always owned and controlled by those currently at work. It is a garden city, with schools and nurseries, public parks, a library, a theatre and an active communal life. Occupied by the German army after the battle of Guise in 1914, it was partly destroyed and plundered of all movable property, yet eight months after the Armistice it was once more at work, and in a few years the old resources and amenities had been restored and stand to-day. A few years ago, output stood at 72,000,000 fcs. and the product had been extended from stoves to cast iron appliances of many other types.

Such is the industrial co-operative front in France to-day. May it come through its second trial of a lifetime unscathed, and go forward to yet further success and solidarity in the years to come!

INDEX

ACTS OF PARLIAMENT (Chronological)

	PAGE
Artificers and Apprentices, c. 4 (1562-3)	60
Corn, 1 Will. & Mary, c. 12 (1689)	85
Land Tax, 4 Will. & Mary, c. 1 (1692)	68
Bank of England, 5 & 6 Will. & Mary, c. 20 (1694)	36
Coinage, 14 Geo. 3, c. 70 (1774)	39
Friendly Societies, 33 Geo. 3, c. 54 (1793)	55
Poor Settlement, 35 Geo. 3, c. 101 (1794-5)	55
Abolition of Slave Trade, 47 Geo. 3 (Sess. 1), c. 36 (1806-7)	55
Wages of Artificers, 53 Geo. 3, c. 40 (1812-3)	55
East India Coy., 53 Geo. 3, c. 155 (1812-3)	55
Corn, 54 Geo. 3, c. 69 (1813-4)	55, 61
Apprenticeship, 54 Geo. 3, c. 96 (1813-4)	55
Assize of Bread (London), 55 Geo. 3, c. 99 (Local) (1814-5)	55
Currency, 56 Geo. 3, c. 68 (1816)	28, 55
Assize of Bread, 59 Geo. 3, c. 36 (1819)	55
Resumption of Cash Payments, 59 Geo. 3, c. 49 (1819)	55
Navigation, 3 Geo. 4, c. 41-5 (1822)	56
Bread and Milling (London); 3 Geo. 4, c. 106 (Local) (1822)	55
Wool Duties, 5 Geo. 4, c. 47 (1824)	55, 61
Spitalfields Silk, 5 Geo. 4, c. 66 (1824)	56
Emigration of Artisans, 5 Geo. 4, c. 97 (1824)	55, 213
Navigation, 6 Geo. 4, c. 109 (1825)	56
Country Bankers, 7 Geo. 4, c. 46 (1826)	55
Corn, 9 Geo. 4, c. 60 (1828)	56
Abolition of Slavery in Colonies, 3 & 4 Will. 4, c. 73 (1833)	55
China Trade, 3 & 4 Will. 4, c. 93 (1833)	55
Bank of England, 3 & 4 Will. 4, c. 98 (1833)	55
Bread and Milling, 6 & 7 Will. 4, c. 37 (1836)	55
Corn, 5 & 6 Vic., c. 14 (1842)	56
Export of Machinery, 6 & 7 Vic., c. 84 (1843)	55, 61, 199
Bank Charter, 7 & 8 Vic., c. 32 (1844)	60
Corn (Repeal), 9 & 10 Vic., c. 23 (1846)	56, 61, 89
Navigation (Repeal), 12 & 13 Vic., c. 29 (1849)	56, 61
Passenger Traffic (Vessels), 18 & 19 Vic., c. 199 (1855)	216
Railway Coys. Accounts and Returns, 1913	230
Corn Production, 7 & 8 Geo. 5, c. 46 (1917-8)	105
Railways, 1921	229, 231
Railways Road Transport, 1928	233
Road Traffic, 1930	233
Road and Rail Traffic, 1933	233
Imperial Airways, 2 & 3 Geo. 6, c. 61 (1939)	79

GENERAL INDEX

A.

Abyssinia, 146
 Addington, 73
Adventure, 130, 131, 133
 Africa, 94, 131, 209, 217
 British, 205
 British East, 210
 British West, 136, 138
 Explorers, 133
 French North, 234
 South, 43-4, 84, 201
 South (Boer War), 5, 112, 229
 South (immigration), 211, 214
 Agio, 34, 35
 Agricultural Co-operative Movement (France), 234
 Air Travel, 20, 79
 Aisne, 239, 240
 Akbar, 50
 Albania, 214
 Albert (France), 240
 Albert Nyanza, 217
 Aldgate, 174
 Ale, 31, 162
 Algiers, 11, 131
 Allen, C. G., 5, 177
 Alsace, 235
 America
 North and South, 207
 South, 224
 South (British capital), 201, 205, 208
 South (Trevithick), 41, 164, 166, 208
 (U.S.A.), 3, 9, 78, 192, 193, 204
 (U.S.A.) (immigration), 211, 215, 216
 (U.S.A.) (steel), 221, 223, 224
 (U.S.A.) (town and country), 85, 84
 American
 Expeditionary Force, 149
 War, First, 5
 War, Second, 214
 Amiens, 73, 238
 Amsterdam, Bank of, 34
 Anderson, J., 96
 Anson, Lord, 128
Anson, 167
 Antwerp, 33, 34
 Appleyard, R., 157
 Ardennes, 234
 Argentine, 205

Arkwright, 111, 116, 163, 197
 Armstrong
 College, 177
 W. G., 112, 124
 Arnold
 Benedict, 5
 Matthew, 222
 Artists' Co-operative Foundry, 239
 Artois, 238
 Ashley, Sir Wm., 46, 134
 Ashton, T. S., 161, 134
 Asia Minor, 191
 Assize of Bread, 55
 Association of Makers of Instruments of Precision (France), 240
 Atlantic, 217
 Atlas Works, 113
 Atton, H., 121
 Austen, Jane, 214
 Australasia, 215
 Australia, 84, 92, 136
 (immigration), 209, 211, 215
 Australian Tariff Board, 77
 Automobile, 114, 227
 Auxiliary Machinery, 124
 Avon (Warwickshire), 117

B.

Babcock & Wilcox, 134
 Bagehot, Walter, 50, 68
 Baker, Sir Samuel, 133, 217
 Bakewell, R., 129
 Ballater, 228
 Baltic, 154, 163, 184, 191, 207
 Bank of Amsterdam, 34
 British Linen, 60, 192
 of England, 19, 60, 156, 209
 of France (Co-operative), 238
 of Hamburg, 34
 Banking, 55, 60
 Co, Dundee, 192
 Bank stock, 207
 Baring, House of, 207
 Bar-le-Duc, 234
 Barnato, Barney, 204
 Barrow, 222
 Barter, 50
 Bath waters, 3, 4
 Beacon Hill (Camborne), 164
 Beans, 30
 Beef, 31

B.E.F.
 (1914), 238
 (1939), 234
 Belgium, 203, 238
 Bell, P., 99
 Bellingham, Sir W., 75
 Belloc, Hilaire, 5
 Bentham, Sir Samuel, 125
 Berwick, 160
 Berwick-Kelso Railway, 98
 Bessemer, 221, 112
 Bethnal Green, 173, 174
 Beveridge, Sir Wm., 32
 Beverley, 82
 Bicester, 229
 Big Ben, 174
 Birmingham, 178, 118, 230
 Black Country, 178, 10, 111
 Blackwall, 173, 175
 Bletchley, 117
 Bloomsbury, 147, 148
 Bobbin, 197
 Bodmin, 170
 Boer War, 5, 112, 229
 Bone-shaker, 115
 Boston tea party, 3
 Boswell, James, 99.
 Boulton, Matthew, 180, 134, 166,
 179
 Bow, 174
 Bell Foundry, 174
 Bells, 174
 Bridge, 173
 Bowley, A. L., 154
 Boxmoor, 156
 Bragg, Sir W. H., 157
 Brazil, 36, 38
 Bretons, 239
 Bridges
 (London Bridge), 158
 (Telford's), 158
 Bridgenorth, 178
 Bridgwater, 162
 Brindley, J., 118, 119
 Bristol, 229
 Bristol Channel, 119
 British
 Association for the Advancement
 of Science, 191
 Columbia, 42, 84, 209
 Linen Bank, 60, 192
 British Queen, 156
 Brown, John, 113
 Bruges, 33
 Brunel
 I. K., 123, 155, 156, 158, 175
 M. I., 155, 167, 175
 Brussels Convention, 141, 142
 Bücher, K., 12, 46
 Bude, 168

Buildwas Abbey, 158, 178
 Burgh, 80
 Burgoyne, General John, 6
 Burke, Edmund, 63
 Burma, 113
 Burn, D. L., 221, 114
 Burton-on-Trent, 118
 Buxton, S., 67
 Buxton, T. F., 58

C.

Calcutta, 191, 192
 Calico, 174
 California, 42, 209
 Calvin, John, 19, 21
 Cam, 117
 Camborne, 164, 170
 Cambrai, 238
 Cambridge, 57, 171
 Cambresis, 238
 Cambridge History of the British
 Empire, 211, 230
 Canada, 5-7, 49, 77, 84, 86, 149
 (American invasion of 1776), 5,
 6, 7
 (British capital), 205, 208, 216
 (immigration), 211, 214, 216
 (industry), 114, 194, 195
 Canadian Mounted Police, 43 (210)
 Canal(s), 98, 112, 179, 228, 231
 (Telford's), 159, 160
 Bridgwater, 162
 Caledonian, 159
 Clyde-Forth (proposed), 160, 193
 Gotha, 160
 Grand Junction, 174
 Manchester Ship, 193
 Regent's, 174
 Suez, 123, 209
 Canal Companies, 119
 Cannan, Edwin, 8, 21, 167
 Canteen & Mess Co-operative
 Society, 238
 Cape Coast Castle, 140
 Cape Colony, 214
 Capital, 15
 (export of), 198
 Capitalist, 19
 Carclew, 168
 Carleton, Sir, 5, 6, 214
 Guy (Baron Dorchester)
 Carlisle, 162
 Carnegie, Andrew, 155
 Carrier, 227
 Carrington, H., 127
 Carrothers, W. A., 211
 Carr-Saunders, A. M., 189
 Cartagena, 42
 Carville, 185

Central Wages Tribunal, 232
 Ceryog, 158
 Ceylon, 113
Chandu, 151
 Chapman
 Denis, 191
 Sir Sydney, 190
 Charleville, 234, 240
 Charrington, 174
 Chartered Companies, 133
 Chartists, 215
 Château Thierry, 238
 Chaucer, Geoffrey, 174
 Chevalier, Michel, 61
 Chester, 182
 Chicago, 82
 Chile, 41
 Chilvers, H. A., 156
 China, 209
 Chirk, 158
Chilemene, 95
 Christchurch (N. Z.), 215
 Christoffels, J. Y., 15
 Chronicon Preciosum, 30
 Church of England, 215
 Cigar, 148
 Cigarette, 148
 Citrus, 87
City of Glasgow, 122
 Civil War
 (England), 72
 (Peru), 41
 Clapham, J. H., 73, 134, 200, 201
 Clarendon Yard (Oxford), 227
 Clark, G. N., 24, 29
 Clarke Chapman's, 186
 Clarkson, T., 58
 Cleveland ore, 113, 222
 Cloth in gown, 31
 Clyde, 160, 184
 Clydeside, 182
 Coal, 112, 120, 184, 199, 222
 Coalbrookdale, 158, 178, 194
 Coaration, 91
 Cobden, R., 47
 Cobden's Treaty (Commercial
 Treaty with France), 47, 112
 Cocaine, 152
 Cockerill, W. & J., 208
 Coconut trees, 137
 Coffee, 145, 146
 -houses, 147
 Coke
 (Lord Chief Justice), 163
 (of Holkham), 83, 97-8, 103, 158
 Colbert (Colbertism), 12, 13
 Collings, R. & C., 98
 Colonial Land & Emigration Co-
 operative Society, 216
 Colonisation, 130
 Comblanchien, 240
 Consolidation, 94
 Consols, 65
 Conversions, 66
 Cook, Capt. Jas., 127
 Co-operation, 135
 (in France), 234
 Co-operative
 Bank of France, 238
 Wholesale Society, 172, 175, 183
 Wholesale Society (German), 236
 Corby, 194
 Corn Laws, 60-1, 84-5, 89
 Cornish Riviera Express, 229
 Cornwall, 164
 Cort, Henry, 125, 167, 179
 Côte d'Or, 240
 Colmar, 236
 Council bills, 35
 Coupland, R., 210
 Court, W. H. B., 177
 Coventry, 118
 Cowan, H. I., 221
 Cowdray, Lord, 41, 206
 Cozette, Monsieur, 237
 Cradley Heath, 178
 Creighton, 195
 Creuzot, 208
 Crewe, 194
 Cricket, 91
 Crompton, R., 158, 197
 Crown Colonies, 199
 Cunningham, W., 13

D.

Dalhousie (University), 128
 Darby
 Abraham, 119, 179
 H. C., 119
 Darlington, 182
 Darwin, Erasmus, 180
 Da Vinci, Leonardo, 197
 De Beers, 201
 Dee, 118
 Defoe, Daniel, 120
 De Laval, 186
 Delitsch, Schulze, 235
 Devastation, 123
 Dickinson, H. W., 83 n., 134
 Dictionary
 of National Biography, 119
 of Political Economy, 15
 Digby, Miss M., 234, 151
 Dijon, 234, 240
 Diminishing returns, 97
 Discoveries, 17
Discovery, 131, 133
 Disraeli, Benjamin, 215
 Dock companies, 60

Docks, London, 174
 Doctor's gown, 31
 Dominions, 216
 Dordogne, 237
 Douglas, Major, 64
 Downing, Sir George, 81
 Dudley, 178
 Dundee, 191
 Dunedin (N.Z.), 215
 Dunham, A. L., 61
 Dunkirk, 120
 Dunlop, J. B., 115
 Durham (Co.), 183, 222
 Durham, Lord, 84

E.

Earl of Hardwick, 217
 East India
 Co., 19, 111, 173, 174
 Stock, 207
 Trade, 121
 Economic
 Journal, 161
 Survey of the Colonial Empire,
 139
 Eddystone, 120
Edeca, 236
 Eden, F. M., 102
 Edinburgh, 159, 230
 Edward III, 171
 Egypt, 209
 Elder, J., 122
 Elizabeth, Queen, 25
 Elizabethan England, 145, 156
 Ellesmere, 118, 158
 Elswick, 124, 186
 Emigration, 211
 Empire Preference, 76, 116, 149
 Enclosure, 85
 Act (General) for Scotland, 99
Endeavour, 127
English Taxation (1640-1799), 70
 Eskdale, 159
 Etaples, 239
 Euston
 Road, 165
 Station, 156
 Exchequer
 Bill, 68
 Bill Loan Commission, 160
 Excise, 72
 Expeditionary Force Canteen, 238
 Exploration, 130
 Export of Machinery, 56, 198-9

F

Fairbairn, Sir W., 123
 Falmouth, 168, 170

Familistère, 240
 Far East, 224
 Farquhar, R. T., 132
 Farraday, M., 186
 Fayle, C. E., 117, 122, 156
 Fenn, R., 101
 Firth, R., 46, 50, 143
 Firth-Brown Centenary, 156
 Flanders, 238
 Fleetwood, 29
 Flemings, 191
 "Flier," 197
 Foley, 179
 Food Supply, 102
 Ford, H., 87
 Forth, 160
 Foster, Sir W., 171
 Fourier, C., 240
 Fox
 Charles, 72, 73
 George, 170
 Foxwell, H. S., 40
 France, 234, 11, 13, 208, 221
 Frankel, Prof. S. H., 43, 142, 201
 Franklin, Benjamin, 19
 Friendly Societies, 59
 Frost, J., 157, 215
 Frühling and Goschen, 209
 Frumenty, 102
 Fulton, R., 134
 Funds, The, 19, 65, 207
 Furnivall, J. S., 13
 Fyfield, 227

G.

Gabriel's Gully, 42
 Gallieni, General, 132
 Gambrinus, 146
 Gateshead, 182, 186
 Gay, E. F., 135
 Geltwirtschaft, 49
 General Motorbus Co., 223
 Genoese Carracks, 84
 George, H., 42
 German
 Army, 240
 Co-operative Wholesale Society,
 236
 steel-making, 221
 teachers, 222
 Germany, 12, 236
 Gibb
 Alexander, 158
 J., 157
 Sir Alexander, 157, 159
 Gibbon Wakefield, 215
 Gilboy, E. W. (Miss), 135, 143
 Gin drinking, 173

Glasgow, 83, 122, 159, 160, 213, 223
 (compared with Tyneside), 182,
 183
 (transport), 160, 228, 230

Glazebrook, G. P. de T., 195

Gloucester, 119

Godefroy & Co., 12

Godin, J. B. A., 240

Gold, 38, 42, 209
 Coast, 43

Goldsmith, Miss M., 144, 152

Gonner, E. C. K., 19

Goodyear, Chas., 115

Gordon, General Charles, 209
 "Gores," 91

Goschen
 G. J., 65
 (Frühling and), 209

Gotha, 160

Gower Street, 165

Grand Junction Canal, 118, 174

Gras, N. S. B., 10, 45

Great Eastern, 123

Great Tom, 174

Great Western, 123, 156

Greater London, 188

Greek monarchy, 208

Gresham, Sir Thos., 33

Gresham's Law, 33, 36

Grew, N., 119

Groundnuts, 138

Guadeloupe, 45

Guinea
 Coast, 179
 piece, 36, 37

Guise, 240

Gwennap pit, 168

H.

Habbakuk, H. J., 83, 94

Hackney, 173

Hailey (African Survey), 12, 43, 44,
 95

Halifax (Nova Scotia), 195

Hall, Sir D., 105

Hamburg, 236

Hamilton
 Alexander, 13, 47
 Earl J., 16, 18
 H., 180
 R., 63

Hammonds (J. L. and B.), 134

Hanbury, Trueman and, 174

Hancock, T., 114

Hansards (Hanseatic Traders), 13,
 84, 146

Hanway, Jonas, 198

Hargreaves
 J., 196
 E. L., 67

Hartlepools, 182

Hastings, Warren, 6

Hatfield, 15

Hawaii, 127

Hawkins, Sir C., 169

Hawthorn Leslie, 183

Hawtrey, R. G., 49

Hayward, N., 115

Heaton, 186

Heaton, H., 89, 134

Hebburn, 183

Heckscher, E. F., 51

Heiligenstein, 237

Heilmann, J., 167

Helston, 227

Henry
 VI, 27
 VIII, 22
 James, 101

Hevea, 116

Highlands, 213

Hildebrand, B., 46, 48, 50

Hill, Rowland, 156

Hinterland, 142, 171, 177

Hitchins, F. D., 211

Hitler, 54

Hobart, 215

Hobson, C. K., 198

Holland, 4, 207, 208

Holmes, Sherlock, 55

Holyhead, 158

Hoover, H., 87

Hope, George, 101

Hope-Jones, A., 73, 76

House of Commons and taxation, 82

Howard, John, 101, 170, 214

Howe, Sir W., 6

Hudson
 Bay Co., 19, 50
 George, 112
 River, 184

Huguenots, 10, 173, 179

Humber, 118

Hume, D., 3, 4, 27

Hunt, B. C., 134

Huskisson, 7, 28, 70, 214
 (export bans), 61, 198
 (on the Ottawa Agreements), 76

Huxley, Aldous, 21

Hydro-Electric Power, 114

I.

Île de Bourbon, 132

Ilford, 175

Illogan, 164

Imperial (see Empire)

Imperial Airways, 79
 Income tax, 69
 India
 (Indian), 25, 189, 196, 210
 (trade), 14, 111, 154, 199, 208
 (trade in opium), 149
 (East India Co.), 19, 128, 150, 207
 (East India Co. Nabobs), 170

Indies
 Dutch East, 152, 201, 208
 Further, 205
 West, 128, 154, 179
 West (Trevithick), 41

Industrial
 Co-operative Movement (France), 234
 Revolution, 181, 189, 212, 222
 Revolution (the phrase), 3, 8
 Writers on, 134

Inglis, Prof. C. E., 41, 164
 Inman Line, 122, 216
 Innis, H. A., 195
 Institution of Civil Engineers, 161
 "Inter," 90
 Investment trusts (Scottish), 192
 Irak, 113
 Iran, 113
 Ireland
 (Irish), 57, 129, 229
 (Irish) (emigration), 211
 (Northern), 10, 213
 Ironbridge, 158, 194
 Isle of Dogs, 173, 182
 Italy (Italians), 11, 13, 84

J.
 Jackman, W. T., 118
 Jacob
 H. E., 144
 W., 85, 144
 James I, 148
 Japan, 78
 Japanning, 180
 Jardine, W., 150
 Jarrow, 183
 Java, 207
 Jenks, L. H., 198, 207
 Jersey wheel, 196
 Jevons, W. S., 42
 Jews, 25
John Bowes, 184
 Johnson
 Dr. Samuel, 99, 144, 147
 S. C., 211
Johnson's England, 57, 91, 147
 "Jonathan," 69
 Jones
 Sir Alfred, 206
 J. H., 188

Judges, A. V., 49
 Jurgens, Ltd., 140
 Jürgens of Brunswick, 197
 Jute, 191

K.
 Kaffirs, 214
 Kames, Lord, 99, 102
 Kartell, 225
 Kelp, 213
 Kennedy, W., 70
 Kenya, 146
 Kenyon, 119
 Kettering, 194
 Kew, 116
 Keynes, J. M., 26, 66, 102
 Khedive, 209
 Kimberley, 201, 204
 King's
 College, 29, 32
 Lynn, 120
 Remembrancer, 73, 75
 Kipling's India, 145
 Kirk, Sir J., 133
 Kitson's, 186
 Knight, F. H., 20
 Knight, Barnes & Flügel, 89
 Knowles, Mrs. L. C. A., 8, 134
 Kulczycki, George, 146

L.
 Labour migration, 211
 Lakes, St. George and Champlain, 6
 Lancashire, 135, 162, 191, 222
 Land
 Army Girl, 106
 Bank, 68
 Drainage, 101
 Tax, 68, 72
 Loans, 239
 Launceston, 168, 170
 (Tasmania), 215
 Laurentian Shield, 195
 Law, John, 22
 Laxton, 89
 Lea, 173
 Leeds, 185
 Leibig, Justin von, 96
 Leicester, 228
 Leman Street, 172, 175
 Lemon
 Wm., 168
 Sir Wm., 168
 Lenin, 51
 Lennard, R., 96
 Lens, 240
 Lever Bros., 138

Leverhulme, Lord, 194, 210
 Lewis, E. I., 196
 Liège, 208
 Lille, 239
 Limehouse, 174
 Limoges, 240
 Lincolnshire, 222
 Linen, 191
 List, F., 13
 Littré, 8
 Liverpool, 162, 163, 194, 217, 223
 (trams and railways), 228, 229,
 230
 Livingstone, David, 133
 Lizard, 227
 Llewellyn Smith, Sir Hubert, 171
 Lloyd's, 156
 Register, 125
 Locke, John, 39
 Loder, F. W., 139
 Loe Bar, 167
 London, 154, 206, 212
 Bridge, 158
 County Council, 228
 East, 172
 Economist, 76
 (evacuation), 80, 188
 (money market), 207, 209
 Petition, 56
 (transport), 227
 Lopez, Sir Manasseh, 169
 Lorraine, 236
 Union of (Co-op.), 234
 Lovett, Wm., 168
 Lower
 A. R. M., 195
 Rhine (Dept. of), 235
 Lowlands, Scottish, 97, 213
 Lowndes, W., 39
 Lubbock, D., 107
 Lunar Society, 180
 Lyautey, Marshal, 132
 Lynton (Devon), 227
 Lytton, Lord, 28

M.

McAdam, J. L., 99, 119, 155, 158,
 159
 McCormick, Cyrus, 100
 Macdonald, D. F., 211, 215
 MacGregor, Tod and, 122
 Mackelvie, D., 101
 Mackintosh (garment and inventor),
 114
 McLeod, H. D., 33
 McPhee, Allan, 135
 Madgwick, R. B., 214
 Maitland, F. W., 117, 177

Malaya
 (opium), 151, 152
 (rubber), 113, 116
 (tin), 168, 194
 (See also Indies)
 Malthus, T. R., 96, 135
 Manby, Chas., 208
 Manchester, 119, 138, 162, 190, 228
 (School), 134, 155
 Mann, J. de L., 140, 190
 Manor Park, 175
 Mansfield (Lord Chief Justice), 163
 Mantoux, P., 134
 Manvers, Lord, 93
 Margarine, 139
 Maria Theresa dollars, 25
 Maritime Provinces (of Canada),
 195
 Marlborough, Duke of, 71
 Marne, 234
 Marshall, Alfred, 50, 222
 Martinmas, 102
 Marx, Karl, 54
 Mary (Bloody), 22
 Marylebone, 228
 Mauritius, 132
 Maximilian, Emperor, 22
 Mechanics' Institute, 123
 Meikle, Andrew, 100
 Mellin (or Mellis), J., 15
 Memorandum to the Royal Com-
 mission on the Distribution of
 Industries, 190, 188
 Menai Straits Bridge, 158
 Mercantile
 Marine, 114, 129, 182
 system, 8, 130
 Mersey, 118, 162
 and Irwell Navigation, 119
 Metropolitan Water Board, 172
 Mexico, 40
 Middle Ages, 222
 "Middle Passage," 57, 140
 Middlesbrough, 113, 182
 Middleton, T. H., 104
 Midlands, 191
 East, 222, 223
 West, 177

Mile
 End, 174
 End Road, 174
 "Military co-operatives," 239
 Milk bottles, 148
 Mill
 J. S., 4, 136
 Lane, 76
 Million Loan, 67
 Ministry of Transport, 231, 233
 Minorities, 175
 Moka, 145

Montgomery, Richard, 5
 Montreal, 195
Morcellation, 94
 Moreton in the Marsh, 160
 Morphine, 152
 Mosley, 119
 Mouries, Mégé, 139
 Muir, J. R. (Admiral), 127
 Mule (Crompton's), 197
 Mulhouse, 235
 Multiplier, 27, 124
 Mun, Thos., 14, 18
 Murdock, Wm., 145, 170
 Mussolini, 51
 Mysore, 170

N.

N.A.A.F.I., 239
 Nabob, 170
 Nailmaking, 178
 Nancy, 234
 Napier, Robert and David, 122
 Napoleon, 39, 68, 79, 98
 Nash, J., 174
 Nasmyth, J., 162
 National Wages Tribunal, 232
 Naturwirtschaft, 49
 Navigation Laws, 11, 61, 78
 Navy, 113, 129, 182
 Nef, J. U., 113, 177
 Nelson, Lord, 129, 158
 Nen, 117
 NESCO, 182, 185
 Netherlands, 13
 Bank, 34
 India, 152, (208)
 Newcastle on Tyne, 182
 Coal Trade, 174, 229, 230
 Coal Vend, 120
 Newcomen, T., 167
 Newfoundland, 128, 129
 Newton, Sir Isaac, 38
 New York, 123
 New Zealand, 42, 77, 129
 (Immigration), 211, 215
 Niger, 138, 210
 Noble, C. B. (Lady), 155
 Nonconformity, 19
 Nord, Department, 239
 Norfolk, 97, 157
 Northampton, 83, 222
 Northcote, S., 67
 North-East Coast, 223
 North-West Mounted Police (43),
 210
 Norwich Union Insurance Co., 14
 Nottingham, 90, 228
 Nuwara Eliya, 217
 Nyanza, 217
 Nyasaland, 149

O.

Oise, 237, 239
 Old Ford, 173
 Oldknow, S., 111
 Old Lady of Threadneedle Street,
 25
 Ollerton, 92
 Ontario, 195
 Northern, 43
 Opium, 149
 War, 150
 Orr, Sir J., 107
 Orwin, C. S. and C. S., 90
 Ottawa Agreements, 76
 Ouse (Bedfordshire), 117
 Owen, R., 157, 161, 215, 240
 Oxen, 99, 170
 Oxford, 172, 227
 Oxfordshire, 222

P.

Pacific Coast, 86
 Pacioli, L., 15
 Paddington, 118, 174, 229
 Palmer, C., 17, 112, 184
 Palmer's, 183
 Palmerston, Lord, 133
 Palm-olive Soap, 139
 Paris, 239
 Park, Mungo, 133
 Parkinson, C. N., 130
 Parks, A., 115
 Parliamentary Paper on Export of
 Tools and Machinery, 1825, 198
 Parnell, H., 70, 158
 Parolle, 186
 Parsons
 C. A., 122, 123, 157
 Marine Steam Turbine Company,
 126, 185, 186
 Paterson, Wm., 101
 Peckard, V.-C., 58
 Peel, Sir R., 61, 118, 199
 Peels, The, 111
 Pelaw, 183
 Pellew, E. (Viscount Exmouth), 5,
 7, 131, 158
 Penal Settlement, 130
 Penzance, 41, 167
 People's House, 237
 Peradeniya Gardens, 116
 Permission Money, 33
 Peru, 41
 Petition of Protest, 76
 Pepys, S., 147, 174
 Philadelphia, 217
 Phillaur, 94
 Piedmont (Carolinas), 87
 Pilchards, 169

Pirenne, H., 80
 Pitt, Wm., 58, 67, 130, 165
 Pitt's Income Tax, 69
 Place, Francis, 136
 Plymouth, 167, 229, 230
 Pont Cysylte, 158
 Poplar, 173
 Porcelain, 174
 Portsmouth, 158, 167
 Port Sunlight, 138, 194
 Portugal, 38
 Postan, M. M., 48, 49
 Potato Raisers, 101
 Pound Sterling, 23
 Prairies, 86
 Presbyterians, 215
 Press Gang, 57
 Price & Co., 137
 Price, Dr. R., 63
 Priestley, Joseph, 180
 Prisons, 170, 214
 Prohibition, 152
 Prothero (Lord Ernle), 104
 Prussia, 12
 P-S, 161
 "Puffer," 164
 Pulteney, 160
 W. (Earl of Bath), 160 n
 Punjab, 94, 149
 Puritanism, 146

Q.

Quakers, 66, 120
Quarterly Review, 221
 Quebec, 6, 195

R.

Raffles, Stamford, 132
 Railway Rates Tribunal, 232
 Railways, 227, 112, 142, 194, 208
 Act (1921), 231
 in East London, 175
 in Scotland, 98, 113
 and Telford, 160
 and Trevithick, 165
 of the Tyneside, 182, 184
 Ranavaloo, 132
 Rand, 133 (see Africa, South)
 Rankine, W. J. M., 123
 Ransome's, 156
 Read, J., 100 n
 Reade, W., 55, 57
 Record Office, 74
 Redford, A., 211, 212
 Redruth, 164, 170

Reformation, 17
 Rennie, John, 158
 Rent, 90, 97
 Repeal Table, 55
Resolution, 127
 Reyrolle, A., 185
 Reyrolle's, 183, 185, 186
 Rheims, 240
 Rhine, Upper, 236
 Rhodes, Cecil, 132, 201, 202
 Rhodesias, 149
 Ribbon development, 173
 Ricardo, D., 16, 19, 22
 Richards, R. D., 15, 67
 Rickman, John, 159
 River, 117
 Riverside, 181, 171
 Roads, 98, 118, 159, 228, 233
 Robertson, H. M., 20-1
 Robinson ("prosperity") F. J.,
 Viscount Goderich, 70
 Rogers, A. G. L., 102
 Roll, E., 181
 Roman Empire (cities of), 171
 Roosevelt, F., 88
 Rothschild, House of, 207
 Royal
 Agricultural Soc., 156
 Commission on Agriculture in
 India, 140
 Commission on Distribution of
 Industrial Population, 188
 Navy, 113, 129, 182
 Niger Co., 138
 Show (Oxford), 99
 Statistical Soc., 104
 Rubens, P. P., 146
 Rugby, 117
 Russells, 147
 Russia, 189, 192, 209
 (See also U.S.S.R.)
 Rye, 103

S.

Sacramento, 209
 St. Austel, 169
 St. Lawrence, 6, 128
 St. Leger, 3
 St. Mary's Spital Priory, 173
 St. Quentin, 240
 Sambre, 238
 Saratoga, 6
 Savery, T., 167
 Saxon wheel, 196, 197
 Scheld, 238
 Schmoller, G., 12
 Schulze Delitsch, 235
 Scinde, 210

Scotland
 (Scottish), 113, 193
 (agriculture), 96
 (crofters), 129, 213
 (drovers), 93, 101
 (labour migration), 212, 213
 (railways), 113, 227, 228, 230
 (steel-making), 222, 243

Scott
 Sir Walter, 60, 121
 W. R., 134, 149, 193
 Scott Watson, J. A., 156

Sea Coal Lane, 120

Seine
 (net), 169
 (river and dept.), 208, 239

Senior, Nassau, 103

Sertürner, F. W. A., 152

Settlement and Removal Regulations, 59

Severn, 103, 117
 (and Birmingham), 118, 179
 (and Coalbrookdale), 153, 178

Shaftesbury, Earl of, 157

Shakespeare's England, 145

Sharp, G., 57

Sheffield, 113, 223

Sherrington, C. E. R., 227

Shieldhall, 183

Shifting cultivation, 95

Ship-building, 184

Shrewsbury, 118

Shropshire, 118, 158, 194, 222

Siemens, Sir W., 113, 125, 221

Sierra Leone, 57

Silk, 10, 173, 174

Silver, 23, 36, 41

Sinclair, Sir John, 63, 71, 98, 160, 165

Singapore, 153

Sinking Fund, 64, 67

Sirius, 123, 156

Slaves (Slave trade), 57, 140, 141

Small, J., 99

Smart, W., 69

Smeaton, J., 119

Smith, Adam, 3-4; mercantilism, 9-10; the discoveries, 17; regulation of interest, 21; wheat tables, 23; price revolution, 24; monetary theory, 25-6; Bank of Amsterdam, 34; stages, 45; towns and cities, 47; perfect liberty, 48; T. Mun, 48; barter, 50; Wealth of Nations and great reforms, 55; violations of liberty, 58-9; Dr. Price, 63; Saratoga, national debt, 64; income tax, 65; Scotland, 70; Huskisson, 79; free traders,

Smith, Adam—*continued*
 81-2; sequence of agriculture, 84; "boy," 92 n.; Charles Smith, 102

Smith
 C., 102
 E. C., 122, 156
 Sir Hubert Llewellyn, 171
 J., 99
 S., 69

Smuggling (Smugglers), 61, 70, 121, 144

Smyrna, 191

Snowden, Philip, 66

Soho (Birmingham), 145, 167, 181

Sombart, W., 21

Somerset House, 158

Somerset (negro), 57

Somme, 237

Soviet Russia, 17, 26

Spain
 (Spanish), 11, 24, 208
 (Iron ore), 194
 (Treaty), 24

Spindle, 197

Spinning Jenny, 197

Spitalfields, 10, 173, 174

Staffordshire, 178, 208, 222

Stages in Economic History, 45

Stalin, 26

Standard
 (Gold), 39
 Wholemeal Bread, 103

Steel, 221, 113, 205

Stephenson
 George, 112, 160
 Robert, 41, 112

Stephenson's Rocket, 98

Stepney, 173, 174

Stewart, Sir Jas., 50

Stevenson, R. L., 12

Steward & Lloyd's, 194

Steward, Ira, 136

Stock Market Boom, 88

Stockton on Tees, 182

Stour, 179

Stourbridge, 178

Stourbridge Fair (Cambs.), 17

Stourport, 118

Strasbourg, 235, 236, 240

Stratford
 at Bow, 174, 175
 on Avon, 160

Stuart, H. A., 117

Stubbs, Peter, 161, 212

Suburbs, 171

Sudan, 132

Suez, 123, 209

Sugar, 103

Sunderland, 182

- Sutter Creek, 209
- Swallow Building Society (Paris), 239
- Swansea, 113
- Sweden, 160
- Swindon, 194
- Switch-gear, 185, 186
- Sydney, 42

- T.
- Tamworth, 118
- Tankers, 122, 125, n.2
- Tariff, 77, 87
- Tasmania, 215
- Tawney, R. H., 16
- Taxes, 56, 69, 71, 82
- Taylor, J., 118
- Tea, 145, 217
- Team Valley Trading Estate, 183
- Tees, 160, 182, 222
- Telford, 157, 80, 118, 119, 213
- Tetley, A., 164
- Tewksbury, 118
- Textiles, 196, 62, 190
- Thackeray, W. M., 66
- Thames, 111, 118, 123, 173, 174
tunnel, 174
- Thomas, Gilchrist, 221
- Thomson
 - G. S., 144
 - R. W., 115
- Thoresby Park, 94
- Θυρρο-σκόπος* 169
- Ticonderoga, 5, 7
- Tikopia, 50, 51
- Times, 221
- Tin, 143, 150, 168, 194, 201
- Tinning-flux, 139
- Tobacco, 144, 149
- Tod and MacGregor, 122
- Tom's Coffee House, 148
- Tooke, T., 40, 60
- Tools, 56, 198
- Toronto, 106, 195
- Torpedo, 123
- Tottenham, 185
- Tower pound, 27
- Townshend, Charles (Viscount), 93
- Toynbee
 - A., 8, 134
 - Prof. A. J., 98
- Trade and Piracy, 130
- Trafalgar, 131
- Tramp tonnage, 121
- Transport, 111, 117, 227
- "Tre-", 164
- Treasury Bills, 68
- Trengrouse, H., 167

- Trent, 118
- Bridge, 118
- Trevaskis, H. H., 149
- Trevithick, R., 164, 41, 100, 134,
208
- Triangular trade, 121, 140
- "Tribute," 168
- Trinity House, 173
- Triple Assessment, 72
- Trois Rivières, 7
- Troyes, 27
- Truro, 168
- Tull, Jethro, 88, 93, 97, 196
- Turbine, 126, 186
- Turkey, 191, 209
- Turnpikes, 119, 159
- Tyne
 - (Tyneside), 181
 - Improvement Commission, 184
- Tynemouth, 183

- U.
- U.S.A. (*see America*)
- U.S.S.R., 9 (17, 26)
- Ulster, 10
- Union
 - (Co-operative) of Alsace, 235
 - (Co-operative) of Amiens, 237
 - (Co-operative) of Carpenters of
the Seine, 239
 - (Co-operative) of Champagne, 238
- United
 - Alkali Co., 193
 - Empire Loyalists, 7, 211, 212, 214
 - Excavators (France), 239
 - Unwin, G., 46, 161
 - Uville, Francisco, 166

- V.
- Valroy Spring, 239
- Van Diemen's Land, 215
- Van Dillen, J. G., 34
- Venn, J. A., 90, 105
- Verdun, 234
- Vermuyden, C., 113, 120
- Victoria
 - County History, 154
 - Park, 173
- Vienna, 146
- Vitamin C, 129
- Vosges, 234, 237

- W.
- Wadsworth, A. P., 140, 190
- Wales, South, 213, 222, 223
- Walker, Thos., 5
- Wallsend, 182, 185

Walsall, 178
Walthamstow, 175
Watton-on-Thames, 172
War
(finance), 69
(food), 102
American, First, 5
American, Second, 214
Civil (England), 72
Civil (Peru), 41
Crinetean, 209
French, 214
Office, 104
Opium, 150
South African, 112, 229
Warrington, 161, 162
"Water-frame," 197
Water Lane, 173
Watson, John, 101
Watt, Jas., 83, 122, 155, 165, 181
Wear, 182
Weaver Hills, 118
Weber
Max, 19-20
Theodor, 12
Wedderburn, A., 4
Wedgwood, Josiah, 111
Wednesday, 178
Wellington
Duke of, 207
Bank (G.W.R.), 230
Wesley, John, 168
West Bromwich, 178
Westbury, 229
Whaling fleet, Dundee, 192
Wheat, 30, 87
tables, 23
"Whim," 168
Whitby, 128
White Bear Inn, 162
Whitechapel, 173, 174
Whitehead, R., 122, 123
White Star Line, 43
Whitley Bay, 183
Whorl, 196
Wickham, W., 116
Wilberforce, Wm., 58
Willan, T. S., 117, 118
William III, 10, 71
Williams, Z., 215
Willington Quay, 182
Willesden, 175
Wilson, J., 50
Winnipeg, 86
Winstanley, 120
Wolverhampton, 178
Wood, A., 153
Wool, 71, 82, 85, 194, 195
Worcester, 119
Workers in Lead and Zinc, 240
Workington, 222
Wright, C., 156
Wyatt, I., 197

Y.

Yarranton, A., 119
York, 82, 191
Yorkshire, 101, 191
North Riding, 182
West Riding, 82, 222
Young, A., 29, 103, 117

Z.

Zinc (Workers in Lead and), 240